October 1975

Smithsonian

Beguiling dancer of Burmese National Theater, about to go on U.S. tour (p. 70)

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IBM Reports

Managing our energy resources

Today, there is a strong sense of concern in this country about the way we use and manage our resources. Nowhere is this concern more acute, or more needed, than in the area of energy.

While it is clear that long-range solutions to the problem will require additional energy sources, it is equally clear that never again—even when new sources have been tapped—will we be able to afford to consume energy in the lavish and wasteful ways of the past. In the short term, learning to control our use of energy is a matter of urgent priority.

Fortunately, some progress has already been made. It has come about largely through common sense actions in managing energy usage, such as reducing lighting and heating levels.

Computers can also contribute significantly to efficient energy management.

Computers are helping utilities reduce power interruptions and increase fuel efficiency. They are helping airlines cut jet fuel consumption. They are helping truck fleets reduce total mileage while increasing actual deliveries.

At the same time, computers are being used to cut energy consumption in commercial, industrial and public buildings.

For example, an Atlanta department store chain reduced its average monthly use of electricity from 7.5 million to 6 million kilowatt hours due to computer control, saving nearly $25,000 per month in the process. And computer control at a major IBM facility in Florida is reducing electricity consumption by 15%.

While helping to conserve energy, the computer is also playing a role in producing energy and converting it to man's use.

The growing usefulness of computers in these and other areas is closely tied to the remarkable reductions that have been made in the cost of doing things by computer.

Today, a specific set of computations can be performed on an IBM computer for less than one hundredth the cost of the early 1950's. This means major savings in overall computing costs.

And as technology continues to advance, the cost-per-computation continues to decline. This will make the computer even more useful in managing our energy resources to help meet the needs of the future.

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October 1975

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Volume 6, Number 7

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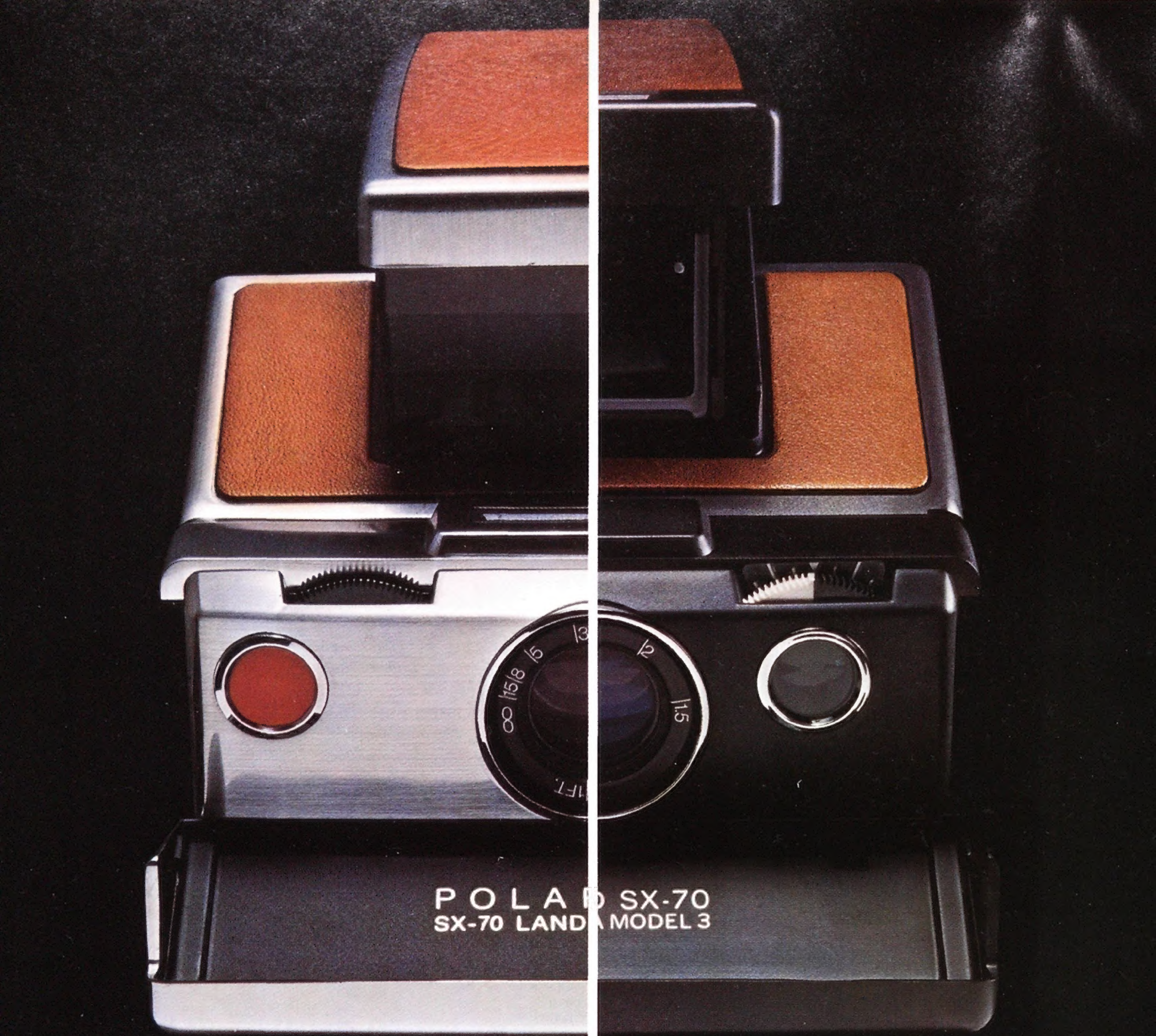
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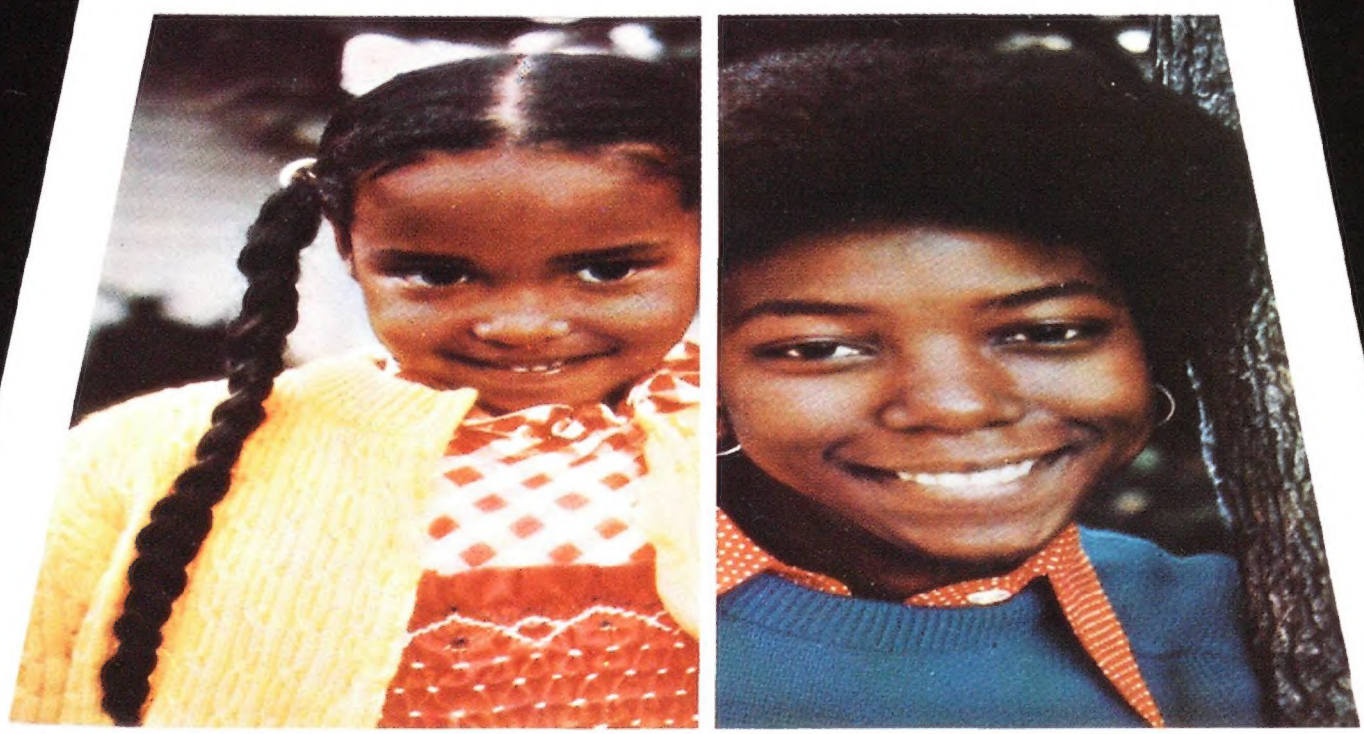

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Choose the camera on the right, and you've saved yourself about half the cost of the original. What do you give up? Instead of chrome, the Model 3 has a black plastic finish. The wrap looks like genuine leather, but it isn't. This model has a different viewing system. Instead of focusing through the lens, you estimate the distance and set it. It accepts some of the attachments, but not all of them.

But the Model 3 performs brilliantly, delivering beautiful SX-70 pictures that develop as you watch.

Whichever you choose (and your dealer offers an in-between model, too) you'll discover what millions of SX-70 Land camera owners already know: this is what picture-taking should have been all along.

Polaroid

The SX-70 photograph on the far left was taken by the deluxe model. The photograph on the right was taken by the Model 3. Note the vibrant colors, the richness of detail in both.

*Comparison based on suggested list prices of the Model 3 and the original Model. © 1975 Polaroid Corporation. Polaroid ®SX-70™

The view from the castle

Interdependence is a two-way street; for Third World nations, as for others, it involves obligations as well as claims

What is the Third World? It cannot be located geographically, nor can it be described by criteria that apply equally to all nations. It seems to me that it is a state of mind. Sometimes the Third World is defined as the have-not nations versus the haves. But is it lack of food? That would exclude Argentina, with its vast productivity of wheat and protein sources. Or is it lack of economic growth? Then Argentina would be included. Is it the lack of energy supplies or raw materials that creates have-nots? That would rule out the oil producers and the mineral producers.

If it is to be a nonindustrialized nation, one could suggest that Portugal might qualify. If it is to be industrialized, but with rampant inflation, staggering debts and little sympathy for "imperialist" strictures about population control, then should one include that fountainhead of Western culture, Italy?

Again, some nations are described as underdeveloped, less-developed or developing. Meeting recently in Mexico, the Club of Rome, a private think-tank organization (see SMITHSONIAN, April 1972 and March 1974), called for a new world economic order, along with disarmament. A Mexican official (and champion of the Third World) asserted that "industrialist powers are to blame for the many problems being faced by the developing world."

Such allegations, and other platitudes about development uttered in the U.N. General Assembly, are bewildering to Americans. But this country, shortly to be celebrating the Bicentennial of its Revolution, is an old-fashioned democracy in the eyes of Third World leaders, many of whom—having been educated in Western Europe, particularly Britain—were brought up in the tradition of Fabian socialism.

Thus, in a recent article in *Commentary,* Daniel Patrick Moynihan, the new U.S. Ambassador to the United Nations, says "there is a distinctive ideology at work in the Third World," and that ideology is socialism. Although not committed to our brand of democracy, neither are these countries committed—as yet—to totalitarianism. Moynihan believes the United States, now an out-voted minority, should become "the new society's loyal opposition," calling attention to—among other things—"the state of political and civil liberties and of the general welfare" in these nations. A good many Third World countries would not "welcome a sustained comparison between the liberties they provide their own peoples with those which are common and taken for granted in the United States." Furthermore, "The Third World has achieved independence, and it needs to assert it in a genuine manner. . . . The Third World must feed itself. . . and this will not be done by suggesting that Americans eat too much."

It is easier to be shrill, profligate in population, lacking in balance sheets and forever thumbing one's nose at the very interdependence of the world that one pretends to espouse. But as Secretary Kissinger said recently: "We don't expect agreement with all our views, but neither can we accept a new version of paternalism, in which those with obligations have no rights and those who claim rights accept no obligations." If we did, the result would be anarchy.

S. Dillon Ripley

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Letters to the Editor

Pittsburgh

SMITHSONIAN *discovered its inadvertent error in reversing the Pittsburgh cover picture for the August issue just in time for a short correction in September. The hundreds of letters which came in subsequently, however, revealed so much good-nature, humor and patience with outlanders' ignorance about Pittsburgh that this month we are publishing a selection, including the picture (right) as it should have been.* Ed.

Dear Sir: I must compliment Charles E. Rotkin for his beautiful night shot of Pittsburgh on the August cover. The Golden Triangle looks very impressive with the lighted fountain at Fort Pitt, pointing the way down the mysterious and placid Ohio River. However, more mysterious is the startling relocation of the stadium and the transposition of the Allegheny and Monongahela Rivers.
H. K. Quick
Hamden, Connecticut

Dear Sir: We have a beautiful city, but no amount of money could accomplish what you did with a flip of a negative.
Marvin J. Tanzer
Pittsburgh

Dear Sir: You made the "Gateway to the West" into the "Gateway to the East."
Mary E. Williams
Pittsburgh

Dear Sir: Perhaps you are proposing massive urban renewal for Pittsburgh.
John I. McGuire
Peekskill, New York

Dear Sir: Whenever I fly in from Washington, I always find the Three Rivers Stadium, for which we were the architects and planners, on the north side of the river intersections. Our sites have always been static, and it is refreshing to realize that we do have some mobility.
Russell O. Deeter
Deeter Ritchey Sippel Associates
Pittsburgh

Dear Sir: I wonder if you just wanted to know if we were paying attention. You made my day!
James A. Moran jr.
Schenectady, New York

Dear Sir: For years every baseball team in the National League has been trying to knock the Pittsburgh Pirates out of the ball park. You have, without the benefit of a fast ball, managed to relegate the Pirates to playing in an empty sandlot behind some steel mill. You are obviously hoping some other team will pick up a forfeit when the Pirates can't find their home field.
M. W. Herman
Chalfont, Pennsylvania

Dear Sir: You must, as I do, admire and respect the people who have worked over the decades to change Pittsburgh from a smog-infested steel center to one of our nation's finest cities. I am in awe that you could move those same hills and rivers merely by flipping a negative. Indeed, lightning has struck at Pittsburgh.
Thomas F. Johnson
Laurel, Maryland

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Saks Fifth Avenue

Dear Sir: You are barging up the wrong river. But, thank you anyway for a truly unique view!
Mrs. W. Lee Rain
Nashville, Tennessee

Dear Sir: I've lived in Pittsburgh for 17 years and thought that I had finally figured out which way the three rivers joined at the Golden Triangle. But your cover has wiped out all of my study.
Dr. Edward Sussna
Pittsburgh

Dear Sir: You note that navigation has been considerably improved since Mark Twain's day. River captains beware!
Irwin S. Sacks
Pittsburgh

Dear Sir: There were days, 30 years ago, when Pittsburghers couldn't see the sun through the smoke-filled sky, but matters never were so bad as to cause a sunset in the east, as your cover seems to show.
D. Kim King
Newark, New Jersey

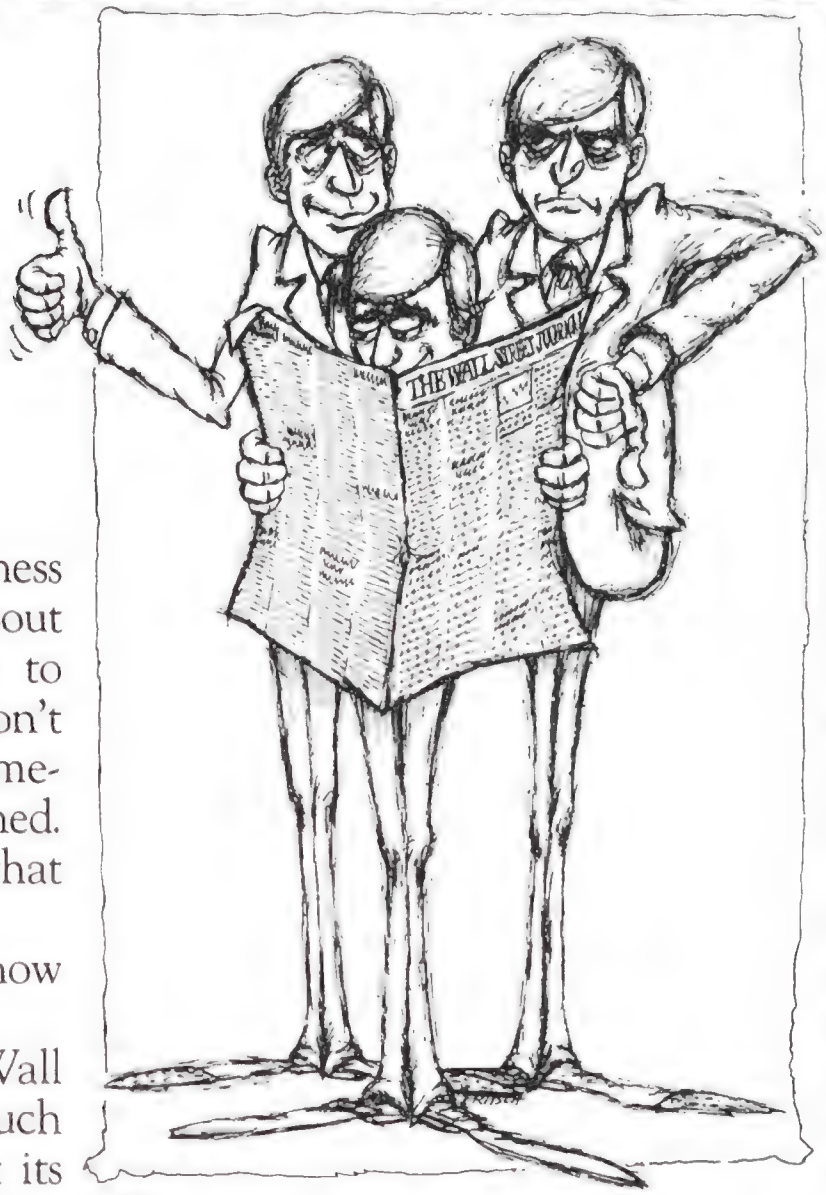
Dear Sir: Don't feel bad. The quality of your magazine would make it worthwhile reading with a mirror even if the whole issue were backwards.
Dr. Albert J. Camma
Mt. Lebanon, Pennsylvania

Dear Sir: It would appear that the lightning has hit the Three Rivers Stadium in Pittsburgh and knocked it clear across the river to the south side. If our riverboat pilots are to find home port from this scene, they are going to have to do it with mirrors.
T. G. Wolstoncroft
Pittsburgh

Dear Sir: The ramifications of plate tectonics and its associated upheavals are far from being fully understood, nor is it easy to comprehend the deluges of water that must have been channeled away from the melting ice sheets thousands of years ago by streams such as the Allegheny River.

In spite of the calamities of the past I was still surprised to see how the Golden Triangle emerged from all of that as shown on your cover.
Harold C. Fry jr.
Earth and Planetary Sciences
University of Pittsburgh at Johnstown

There are three sides to every question: the pro side, the con side and the inside.



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Dear Sir: It is still a beautiful picture, no matter. Also, the article on the river traffic was most interesting.
Regis L. Grogan
McKees Rocks, Pennsylvania

Dear Sir: Maybe by shifting Three Rivers Stadium to the Ohio's left bank, you have invented "llabesab," in which players dash clockwise around the diamond.
Henry J. Volker jr.
New York City

Dear Sir: Now tell me, did the lightning get in your eyes or have you been able to accomplish the most unusual engineering feat of the decade?
J. C. Hornberger
Hamilton, Ohio

Dear Sir: I was pleased that SMITHSONIAN, with one swell foop, managed to relocate Three Rivers Stadium on the south side of the city where most of us, except Mayor Flaherty, thought it should be.
William H. Simendinger
Pittsburgh

Dear Sir: Your cover illustration is a study of dark on dark worthy of Dürer, except that he would have been appalled by the errors of spatial representation.

On balance, however, you need not be too apologetic about a trifling mechanical slip. Your publication is the one magazine coming to our house that I read every month in its entirety. Keep up the good work. I thought the articles on geophysics, Danubian archaeology, Scythian artifacts and the Canterbury stained-glass preservation outstandingly fine.
Franklin O. Wisman
Chambersburg, Pennsylvania

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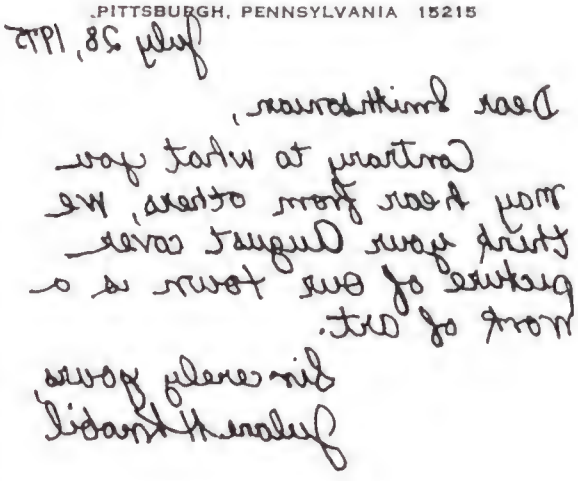
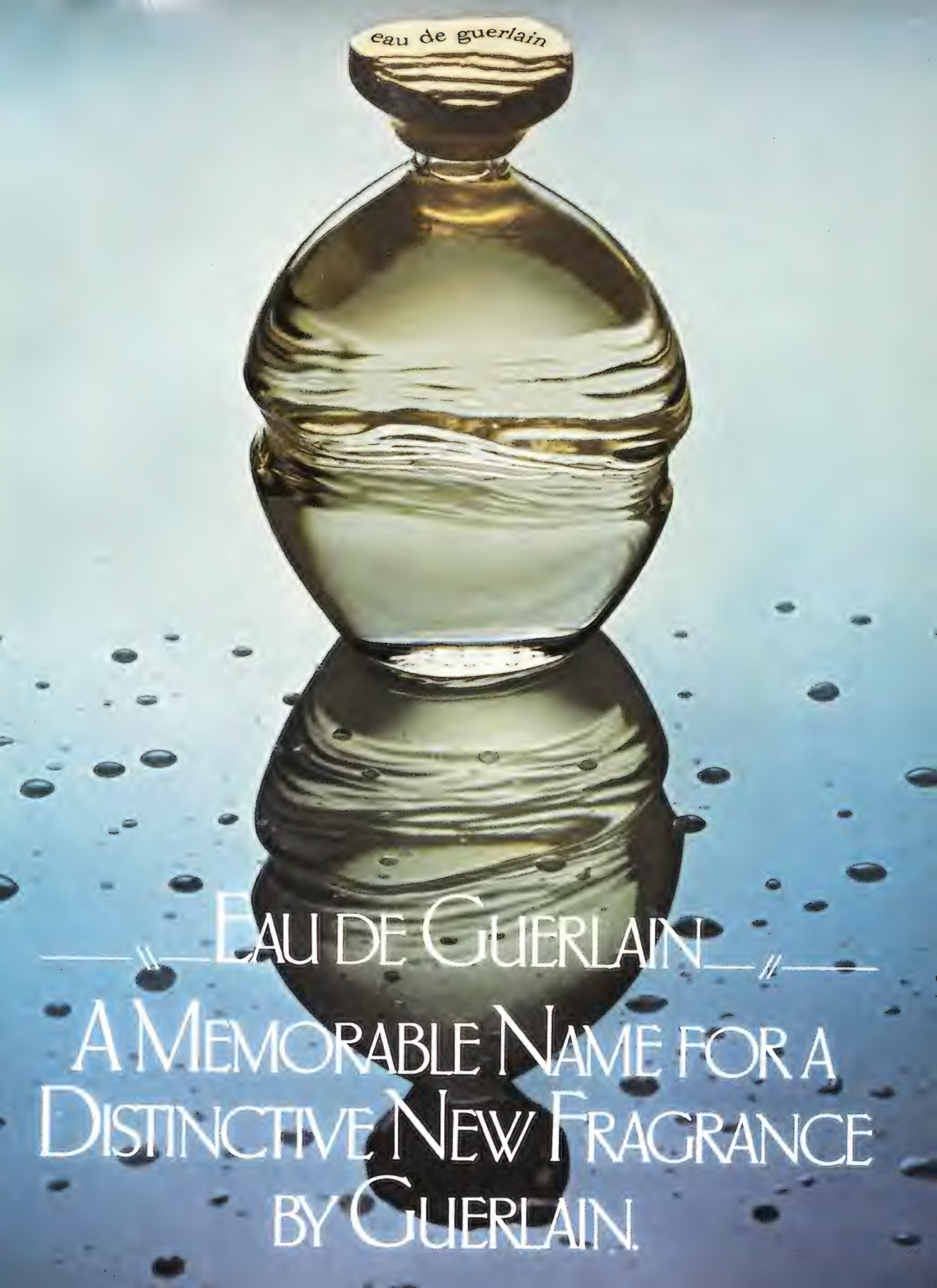
WEST WALDHEIM ROAD
PITTSBURGH, PENNSYLVANIA 15215





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YES! Rush me your **FREE DAMART** Catalog . . . I want to enjoy the fantastic warmth of Thermolactyl Underwear, a DAMART® exclusive. (I understand there is no obligation.)

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Cope's bones

Dear Sir: I was fascinated by the article on Edward Drinker Cope. Cope and his colorful adversary O. C. Marsh have long been of interest to me. I cannot help thinking how Marsh's corpse must smile around Christmastime when Cope's Quaker (and now empty) cranium is so festively tinseled. I think Cope had something else in mind when he willed his remains to science.

Scott C. McKenzie
Erie, Pennsylvania

The hole in the doughnut

Dear Sir: I enjoyed Richard Pritchett's article, but I'm afraid we'll have to go beyond Captain Hanson Crockett Gregory to find out who *did* put the hole in the doughnut.

Mr. Pritchett tells us that centuries ago, in England and the Netherlands, doughnuts had no holes and were known as fried cakes. However, a 1627 *Still Life* by the Spanish painter, Juan van der Hamen y Leon, on exhibition in the National Gallery of Art in Washington, D.C., includes two doughnuts that look exactly like our contemporary product [See below].

Dana Stockbridge
Washington, D.C.

Still Life (detail)
Juan van der Hamen y Leon
National Gallery of Art, Washington
Samuel H. Kress Collection

New particles

Dear Sir: In your article on new particles in the July issue the author erred in saying that Professor Charles Richter is my brother.

Burton Richter
Stanford Linear Accelerator Center
Stanford, California

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COGNAC

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"Space Station One" A 24 x 28 inch lithograph in brilliant full color. $15.

The space station from 2001. First offering of Robert McCall's contemporary classic.

In the future, Man will use his down-to-earth technology to reach deep into the awesome infinity of outer space.

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He has a mind that spans time and space, an eye for technical detail—and the hand of a great painter.

His painting of Space Station One, created for the film, "2001: a Space Odyssey," has become a collector's item and a contemporary classic.

"First Men on the Moon" (Private collection)

Commissioned by NASA to paint scenes of Man's first ventures into space, McCall is at the spot for important launches and splashdowns.

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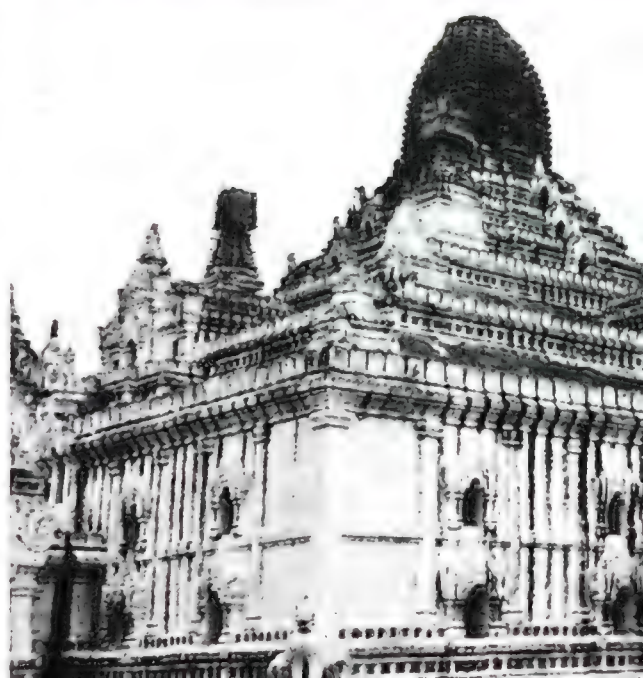
Pagan

Dear Sir: An earthquake of major force struck Pagan, the ancient capital of Burma, on July 8, knocking down or damaging more than half of the 500 most important 11th- to 13th-century pagodas and temples [there are more than 2,000 in all], which stretch for 16 miles along the Irrawaddy River. We reported in SMITHSONIAN, October 1974, on the splendors of these treasures of historic art and architecture [See Carl Mydans' photograph, just below, of the Ananda temple, and, at bottom, after the quake].

Though we were in Burma at the time of the earthquake, working on another SMITHSONIAN article (pp. 70-80), we were unable to get to the quake area. But a Mr. Lu Yoe, writing in the Rangoon *Working Peoples Daily*, gave this dramatic report of the disaster: "The dam-



age is fantastically enormous. All the pagodas and temples that have been repaired in the last 200 years have been enormously damaged. One cannot see how some of these famous temples can ever be restored. . . .

"At 6:28 P.M. I was cycling past the front of the Gawdawpalin Temple. There was, at first, a loud roaring sound, like the roar of heavy waves in a storm. . . . At the side of the road an old Burmese lady . . . began to beat the ground with the flat of her hand, screaming out: 'Be quiet, be quiet, O Great Earth. . . .'

"Then, one by one . . . the great temples and pagodas began to burst open outwards and upwards in dense clouds of reddish-brown brick dust, while their stucco and bricks poured like water down their sides. . . ."

Carl and Shelley Mydans
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The Bicentennial Council of the Thirteen Original States
presents its official tribute to

The Fighting Men of the American Revolution

SCULPTURES SHOWN ACTUAL SIZ

To be issued in strictly limited edition.
Available by advance subscription only.
Limit: One set per subscriber.
Subscription rolls close: October 31, 1975.

THE PATRIOTS who won America's freedom were ordinary people—citizens of our thirteen original states—united by their belief in the cause of liberty, justice and American independence. They were not professional soldiers. Yet side-by-side they marched to victory over a British army that was considered the finest of its day.

Now, as we begin the celebration of our nation's Bicentennial, it is fitting for us to remember—and honor—those men who made our country free.

To do so, in a lasting and significant fashion, The Bicentennial Council of the Thirteen Original States—representing the official Bicentennial Commissions of all thirteen of our original states and dedicated to making the nation's forthcoming Bicentennial a time for revitalizing the spirit of the American Revolution—will issue a collection of thirteen finely sculptured figures honoring *The Fighting Men of the American Revolution.*

Works of art in fine pewter

Each of these figures will be a work of art that is historically accurate down to the smallest detail. The patriots' uniforms, and their equipment, will be exactly as they were in Revolutionary days—sculptured with precision and authenticity by the distinguished American artists William Imrie and Clyde Risley, whose work together has won them a place among the finest historical sculptors of all time.

Each sculpture will be produced in fine pewter—the traditional metal of Revolutionary America. This high-quality pewter, prized since Revolutionary times for its softly gleaming luster and rich tone, enhances every detail of the sculptor's art.

America's citizen-soldiers, authentically portrayed

As recognized authorities on the uniforms of the American Revolution, and as Fellows of the Company of Military Historians, the sculptors have received the full cooperation of curators and scholars from museums and historical societies throughout the thirteen original states. As a result, every detail is accurately portrayed, and the entire collection is authentic in every respect.

. . . A Massachusetts militiaman, from Captain Minot's Alarm Company of Concord, is depicted after the battle at Concord Bridge. His coat is in the style of the French-and-Indian War. His empty cartridge box is homemade. His weapon is an old fowling piece. And a British light infantryman's cap lies behind him, as testimony to the Redcoats' hasty withdrawal . . .

. . . A frontiersman of Thompson's Pennsylvania Rifle Battalion—a deadly marksman who could load and fire on the run—is shown sprinting to a new vantage point. His rifle is on the half-cock, and one ball in his shot board has already been fired . . .

. . . An officer from the 3rd New York Regiment pauses to light his pipe during a lull in the action. His hat bearing a military cockade, is properly tilted over his left eye. And the fringed epaulet on his left shoulder identifies him as a First Lieutenant . . .

. . . A private of the 1st New Jersey Regiment, battered by the icy blasts of a winter storm, attempts to warm his hands over a small fire. His legs are wrapped in a torn blanket. He has turned down his cuffs for protection, and the lapels of his coat have been buttoned across his chest . . .

Each is unique—in action as well as in uniform—just as the citizen-soldiers of our thirteen original states were unique. Yet the complete collection has an artistic unity that is symbolic of the shared ideals that brought these men together in the fight for liberty.

A strictly limited edition

The Fighting Men of the American Revolution will be issued in a single, strictly limited edition, with an absolute limit of one set per subscriber. Each figure will stand on its own sculptured pewter base, and each base will carry the title of the work, the sculptors' signatures and the distinctive hallmark of The Franklin Mint, which has been appointed by the Bicentennial Council to produce the complete collection.

But the collection is available *only* by advance subscription, and there is an absolute limit of one set per subscriber. The total number of sets produced will be exactly equal to the number of valid subscriptions postmarked by the closing date of October 31, 1975. *When each subscriber*

© 1975 FM

has received his sculptures, the molds will be broken—so that these limited edition works of art can never be produced again.

No advance payment is required

The sculptures will be issued at the rate of one every other month, beginning in December 1975. The original issue price is $60 per sculpture. *No advance payment is required.* Subscribers will be billed for each sculpture, after shipment, in two equal monthly installments of $30 each. Thus, each subscriber will be able to acquire this extraordinary collection of limited edition sculpture on a convenient monthly basis.

Subscription deadline: October 31, 1975

As a tribute to the patriots who won our nation's freedom . . . as an important work of art in pewter . . . and as a symbol of two hundred years of American independence, this collection will be cherished for generations to come.

But this is the only time that *The Fighting Men of the American Revolution* will ever be offered. To acquire this important Bicentennial tribute, be sure that the Subscription Application below is mailed by October 31, 1975. Applications postmarked after that date will, regretfully, be declined and returned.

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The Fighting Men of the American Revolution

Must be postmarked by October 31, 1975.
Limit: One set per subscriber.

The Franklin Mint
Franklin Center, Pennsylvania 19091

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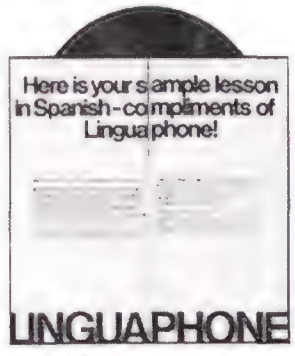

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Around the Mall and beyond

For some years now, I have been going to and from my daily job by passing directly beneath two of the world's most famous aircraft, the Wright "Flyer"—the first plane to get off the ground successfully—and Charles A. Lindbergh's *Spirit of St. Louis*—the first plane to make it from New York to Paris. Both have been

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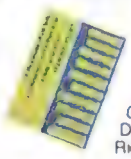

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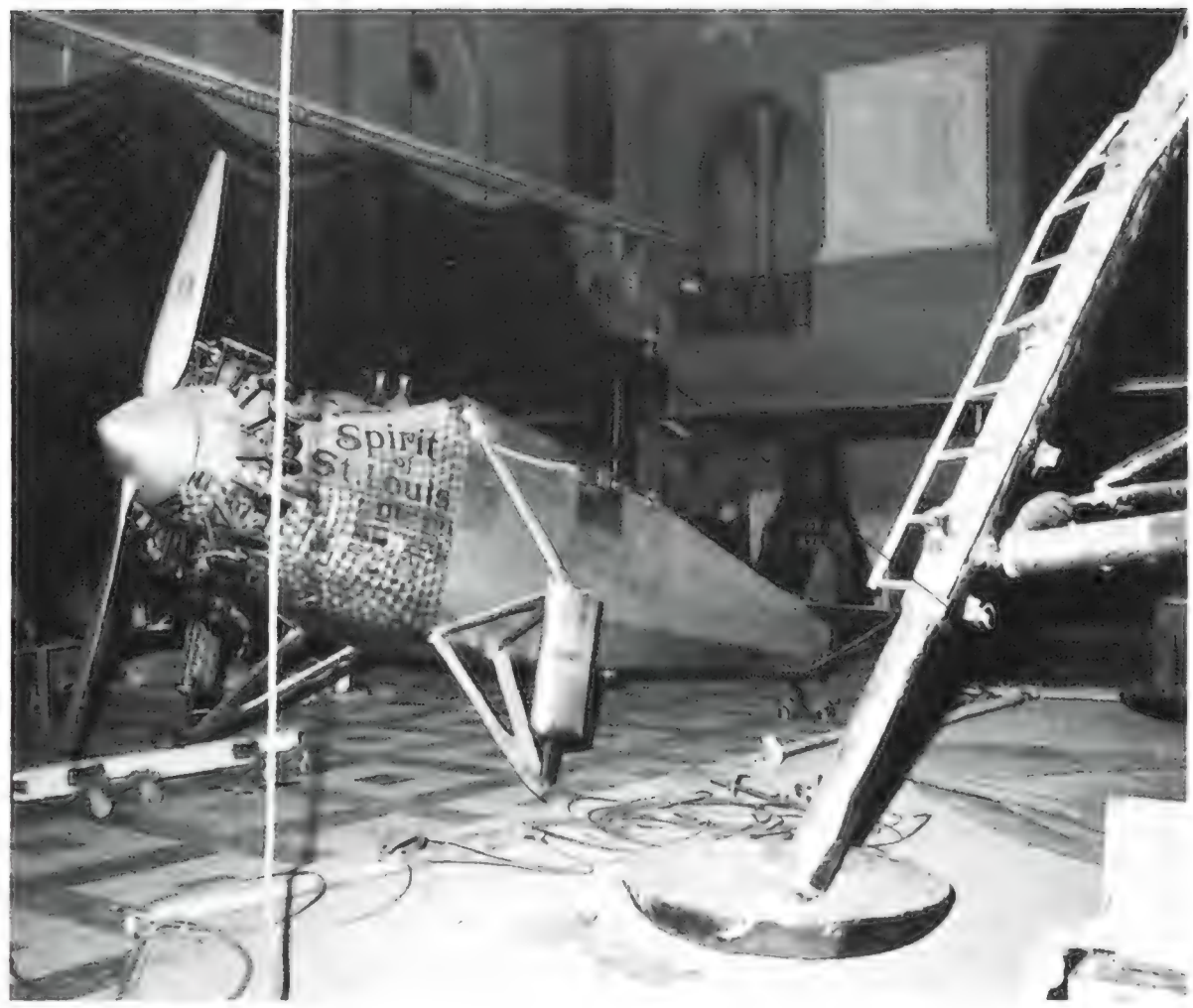
Ridgeway

hanging from the ceiling of the Smithsonian's old Arts and Industries Building for decades.

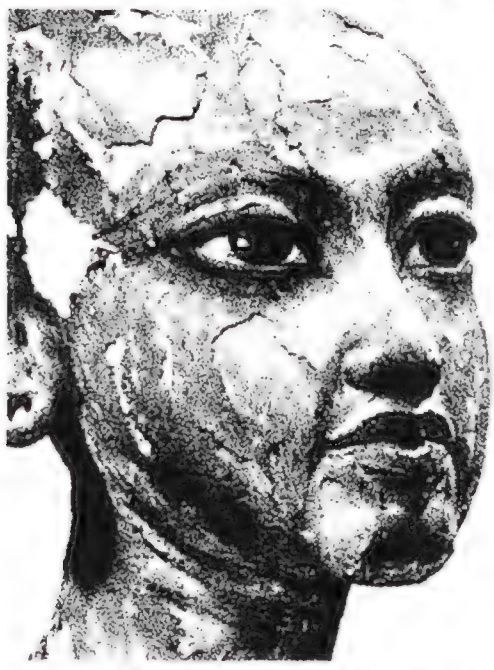
The Wright brothers' plane seemed to be soaring low toward the front entrance, and the fabricated figure of Orville Wright, prone upon the lower wing, stared ahead with a glazed look as though he were just realizing he could never get through the door. Behind him, and higher, the silver *Spirit* gleamed, her wings slightly tilted as though she were straightening out for that historic landing at Le Bourget in May 1927.

When our Air and Space Museum began the move to its enormous new quarters just down Independence Avenue (scheduled to open July 4, 1976), I noted with some excitement that we ordinary people, with a little luck, would have a chance to see these great old planes on the ground, at close quarters. The time came, last August, and my luck ran out. I was in California.

Fortunately, however, one of my colleagues on this magazine is a pilot and



IN EGYPT c.1350 B.C., THE EYES HAD IT.



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The book is an endlessly interesting journey through ancient civilizations — from Mesopotamia to China, from pre-history to 200 A. D.

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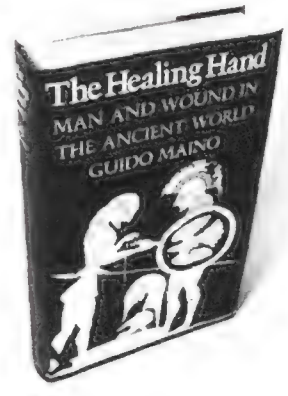

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she made a personal point of approaching the *Spirit of St. Louis* on the ground, wings removed, and making its acquaintance. She reports that, aside from nearly 30 years of previously unreachable dust, the cockpit where Lindbergh sat for 33 hours looks pretty comfortable. The seat is padded, the instruments and gadgets reasonably familiar to a pilot today.

My friend and I had forgotten that the late General Lindbergh toured many countries, mostly in Latin America, in the *Spirit* after his Paris flight. Each nation he visited is noted by a small flag, neatly painted on the metal cowling of the engine. These are not decals, mind you. They seem to be hand-painted flags, carefully rendered and then varnished.

Who did this meticulous job, we wonder. Surely not the great man himself? And yet there is something about the task that is like him—the total accuracy, the endless attention to detail.

Our pilot admits that before saying farewell (for now) to the *Spirit of St. Louis*, she perpetrated what is traditionally considered the most heinous of all museum crimes, on a par with talking in a public library. She touched the plane. She says she thought about the story of the French crowd that swept onto Le Bourget field to greet Lindbergh, and how the souvenir hunters swarmed about his plane, swamping it with humanity, tearing pieces of fabric from its ribs while he strove to save it.

Just to see if the scars had healed all right, my friend gently ran her fingers across the silver fabric. She says it was as tight as a drumhead, slick and smooth. It felt almost like new.

The *Spirit* is now at the preservation and restoration division of the Air and Space Museum. This is a sprawling complex out at Silver Hill, Maryland, on the outskirts of Greater Washington. It deserves—and I hope will get—a column to itself one day, but, as a tantalizer, you should realize that just about every plane that ever made a historic flight is out there getting fixed and shined up for the new museum.

I returned to Washington in time to get a look at the Wright plane before it, too, was bustled off for the tender loving care due such a fragile old-timer. The wooden wing spars looked sound, though darkened by 72 years. One wing strut was slightly bent. The muslin of the wing surfaces is also brown with age—

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These copies, often produced by the same techniques used for the originals, are made by artist-craftsmen working under the Museum's direct supervision. The care taken in production frequently limits the quantity, and the majority of replicas can be bought only by mail or at the Museum. (Above: Sphinx. Ptolemaic Period, 100 B.C. Cast stone, Length 14", $37.50 plus $1.25 for shipping.)

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THE METROPOLITAN MUSEUM OF ART

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it was originally unbleached white—but it looked taut and sound. If you think I had the nerve to touch it, you are wrong. Had I done so, a lightning bolt would have sizzled all the way from Dayton, Ohio, and reduced me to a pot of tallow.

Dayton was the Wrights' hometown, where much of the work on the wings was done. Myriad stitches that attach the fabric to the wing spars were done by hand. I'm told that an old lady of Dayton recently recalled answering an advertisement seeking someone to do "plane sewing." She thought it meant "plain," got the job and found herself working on a wing for one of the Wright planes.

The Wright "Flyer" used to hang in a London museum until 1948, when it came to the United States largely through the efforts of Paul E. Garber, Historian Emeritus of the Air and Space Museum. Garber says it made the voyage in the old Cunarder *Mauretania*, but landed at Halifax instead of New York because of a strike. He got the U.S. Navy to ship it on down to Washington.

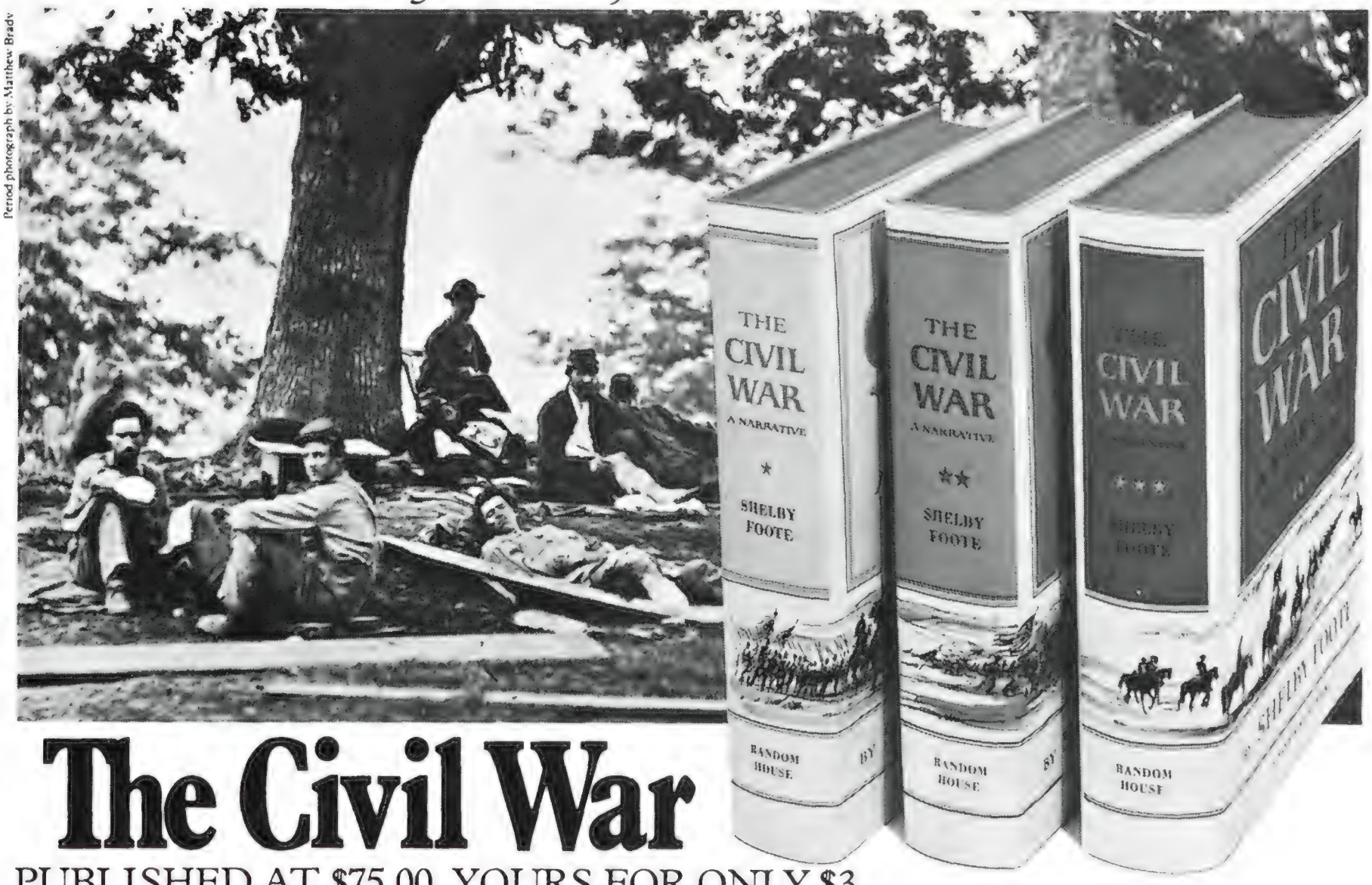
Garber felt the plane needed a man's figure in it to show how it was controlled, and also to indicate front from back, for the shape of those early birds is a lot different from that of a jumbo jet. What better figure to copy than that of Orville Wright, who actually made the first flight?

A sculptor friend of Garber's did Orville's head, based on a likeness (he had died early the same year), and Garber himself banged together a sort of body frame to lie on the wing the way Orville had—prone, with hips fitting into a yoke that controlled the warping of the wing, right elbow supporting himself and left hand in charge of the plane's elevator, making it rise or descend. Garber used himself as a model, adding a few inches since Orville was taller.

When it came to dressing the mannequin, Garber found he could get one of his old suits—soberly dark blue, which Orville would have liked—onto the frame without too much wrist and ankle showing. He also sacrificed a white shirt, but he drew the line at giving up a pair of his own shoes to a dummy. Garber bought some, he thinks at a cut-rate shoe store.

One item of clothing gave Garber a lot of trouble. Men's fashions of 1903 dictated a stiff high collar, even for unpretentious bicycle-shop owners who just happened to go around inventing planes. And the Washington, D.C., shops of 1948

100 years later, the wounds still bleed.



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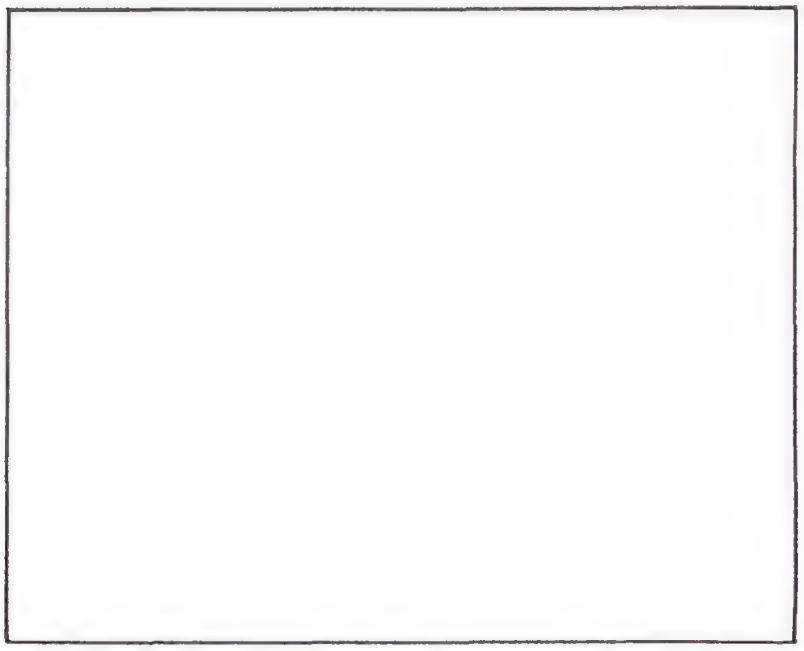

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had left that style far behind. Garber tried everywhere with no luck, then asked the elderly proprietor of a haberdashery in the old Willard Hotel.

"What size?" responded the haberdasher, as if he listened to that particular request every day of the year and was a bit bored by it all.

Garber choked down his surprise and automatically gave his own size, 15½.

"How many?" asked the man.

Swallowing again, Garber decided on two for openers.

And after a little rummaging in the back, there they were—two high-standing collars right out of the Edwardian age. Delighted, Garber asked how in the world the haberdasher happened to stock them. "I was a great admirer of Herbert Hoover," replied the haberdasher. "He wore these when he was President, and if he should someday return to office I want to be prepared for him."

When the new Air and Space Museum opens, new mannequins will probably adorn the planes and space capsules that require them, although no one seems to know for sure whether there will be a

new, shiny, plastic Orville lying on the lower wing of the "Flyer." If so, Paul Garber will presumably get his white shirt and blue suit and cut-rate shoes back again. As for the high-standing collar, the chances are fair that it's the only one left in the whole United States. And now that President Hoover has left us, Orville may well wear it again.

So much for the wings of man. The other kind can be found in abundance in the eastern extension of the Museum

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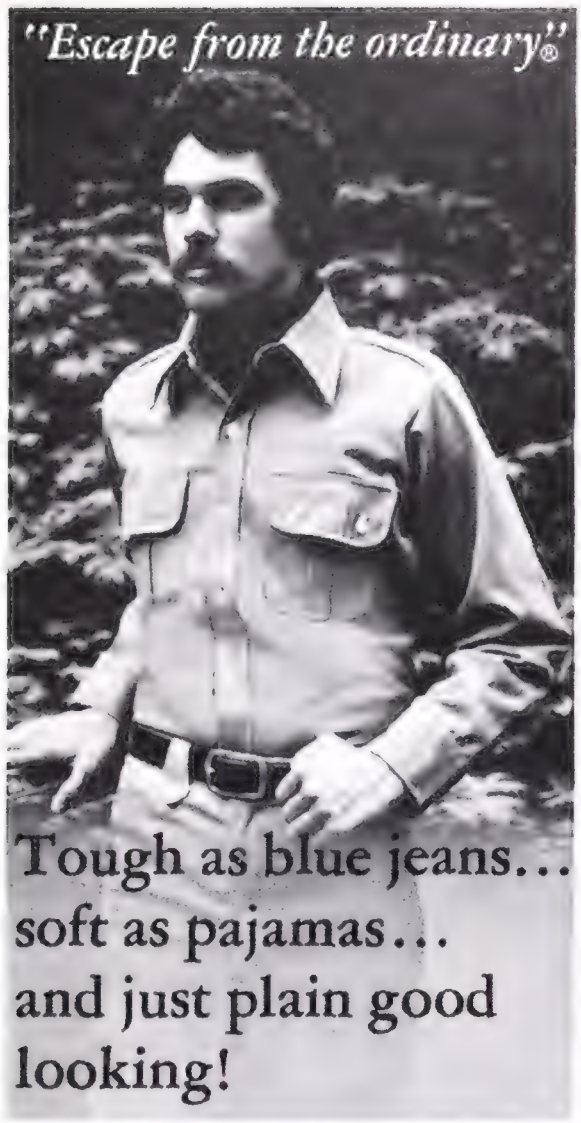

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of Natural History, across the Mall. The top floor there is known as—that's right—the bird wing. Here stand case after case, chest high, battleship gray, containing more than a half-million birds. They lie in myriad shallow drawers, their skins stuffed with cotton so that their little eyes puff out whitely. Some shelves hold nothing but skeletons and parts thereof; others contain various bits and pieces of bird, like wings.

The Smithsonian has been collecting these specimens ever since Spencer Baird, our first great naturalist-Secretary, was given a bunch of skins and stuffed corpses by his friend Audubon, back in the 1850s. These specimens are the reason there is such a science as ornithology and explain why the Smithsonian is important in this field. Yet today there is a movement—apparently growing—to end the collecting of bird specimens and to clear out many existing bird collections.

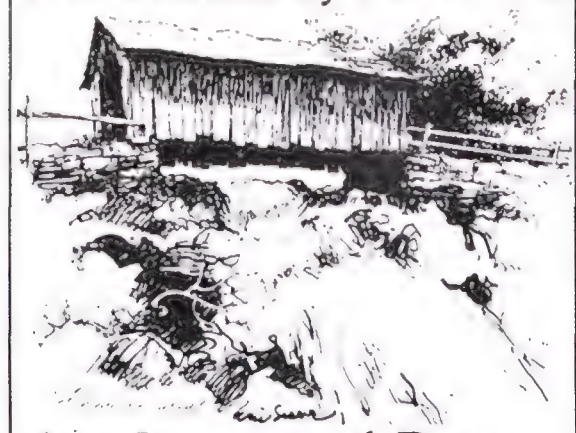
This two-pronged drive stems on the one hand from scientists and museum people of other disciplines than ornithology, who would like some of the space that bird bodies take up. They argue that once you have studied a bird and tagged it, you don't need to keep it.

The other prong is pushed by the same old movers and shakers of militant conservation with whom most of us agree about most things—the people who want to save whales and bald eagles and wolves and all those neat creatures. Birds are having a tough time of it anyway, they argue, what with DDT and land-clearing for plastic suburban homes. Let's not kill any more. Well, eager as we may be to stand foursquare behind conservation, the voice of science, in this case, needs to be heard.

Our voice of science, I discovered, comes from a small, intense ornithologist named Allan Phillips, a professor at the Universidad Aútonoma de Nuevo León in Monterrey, Mexico. I found him hovering over some of those trays up in the bird wing, poking at some little stuffed *Loxia curvirostra,* which to you and me is crossbills. I counted a baker's dozen of the females (olive gray instead of red) all quite obviously "collected" by one means or another.

Only such specimens, Dr. Phillips pointed out sharply, allow a person to make true measurements, take notes on changing feather patterns and other technical details. To an ornithologist, a bird

The Roots of America



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in the hand is obviously worth two in the book.

The anticollectors are printing broadsheets and putting ads in ornithological magazines telling everyone to stop the slaughter. All a scientist needs to establish the species is field identication, they say.

Not so, says Dr. Phillips. He cites a couple of sandpipers whose subspecies cannot be confirmed unless their sex is determined—and with a sandpiper you can't tell girl from boy unless you really probe around. It's important to know about those subspecies because that full identification has a bearing on the sandpiper's winter range.

Dr. Phillips is a specialist on migration and has just published a paper on the migrations of hummingbirds. He may be doing something about parrots, too, because he was carrying a parrot skin in his pocket. We shall all undoubtedly benefit in delightfully subtle ways from his researches and others like them.

I recall an official lunch some time ago with a group of birders—who were entertaining a renowned ornithologist, not unconnected with this institution. He had earned recent fame by identifying a tropical species thought to be extinct.

"How could you be sure, Dr. Piercebeak [the names are fictitious for a spell here] that what you saw was really the scarlet-livered crack thatch?" asked one of the bird watchers, her neck craned forward, partly in eagerness, partly from wearing binoculars since the age of five.

"How could I be sure, Miss Tweedings?" repeated the doctor in surprise. "Why, I shot him, of course."

There was an appalled silence. You might say (if you will forgive it) that the assemblage quailed. Then another of the group put down the copy of Roger Tory Peterson he had been surreptitiously scanning. "*Shot* him?" he said, incredulously, his wattles quivering.

"Yup," said the ornithologist, briskly. "Got him with the half-choke barrel just as he was rising. Number ten shot. Makes a nice pattern, you know." He helped himself to another sherry while his hosts gradually recovered.

As my father's friend Slocum used to say, in one of his inevitable New Hampshire aphorisms, "You cahn't get the vartue out of a lobstah without bustin' the shell."

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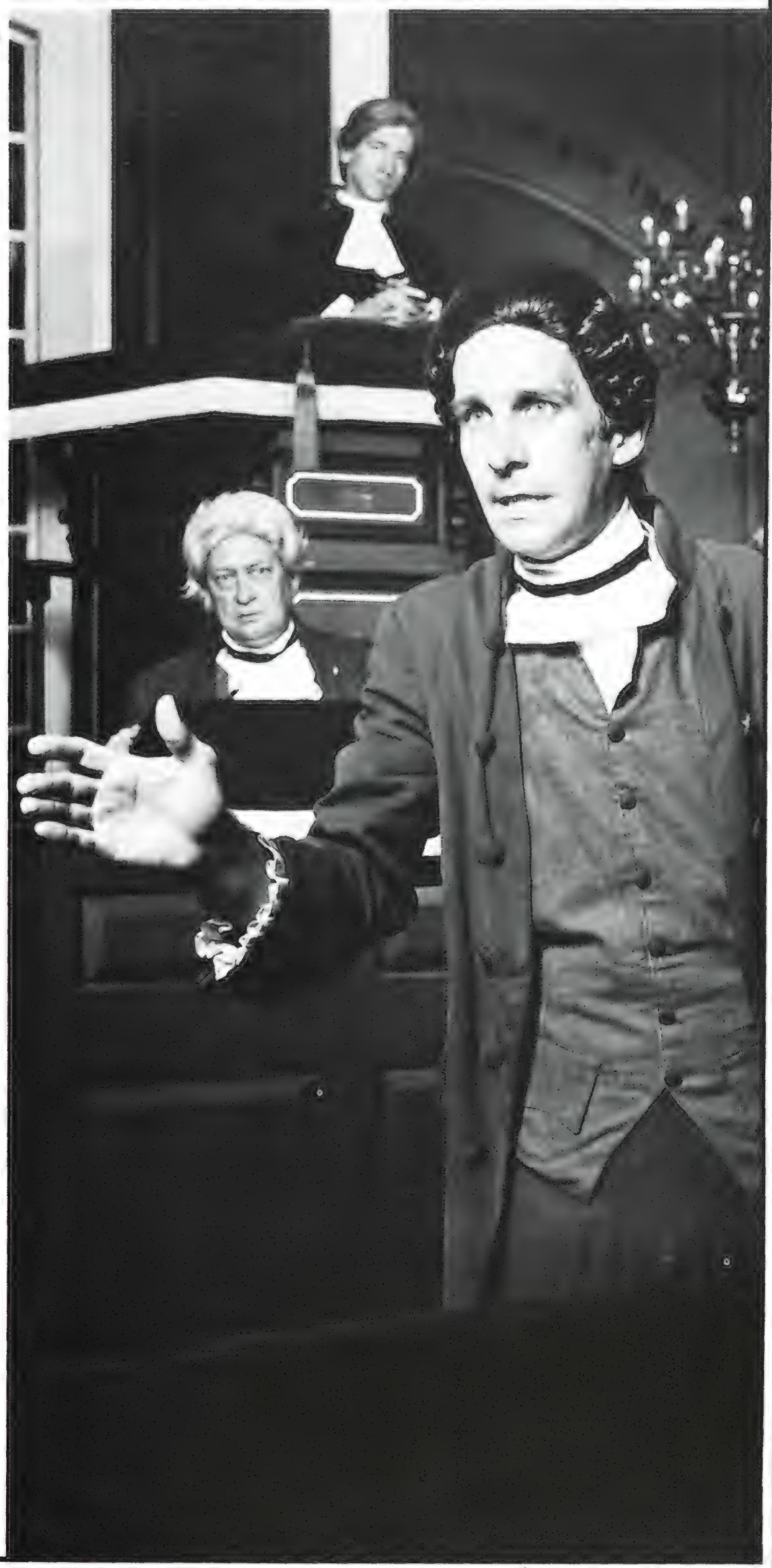

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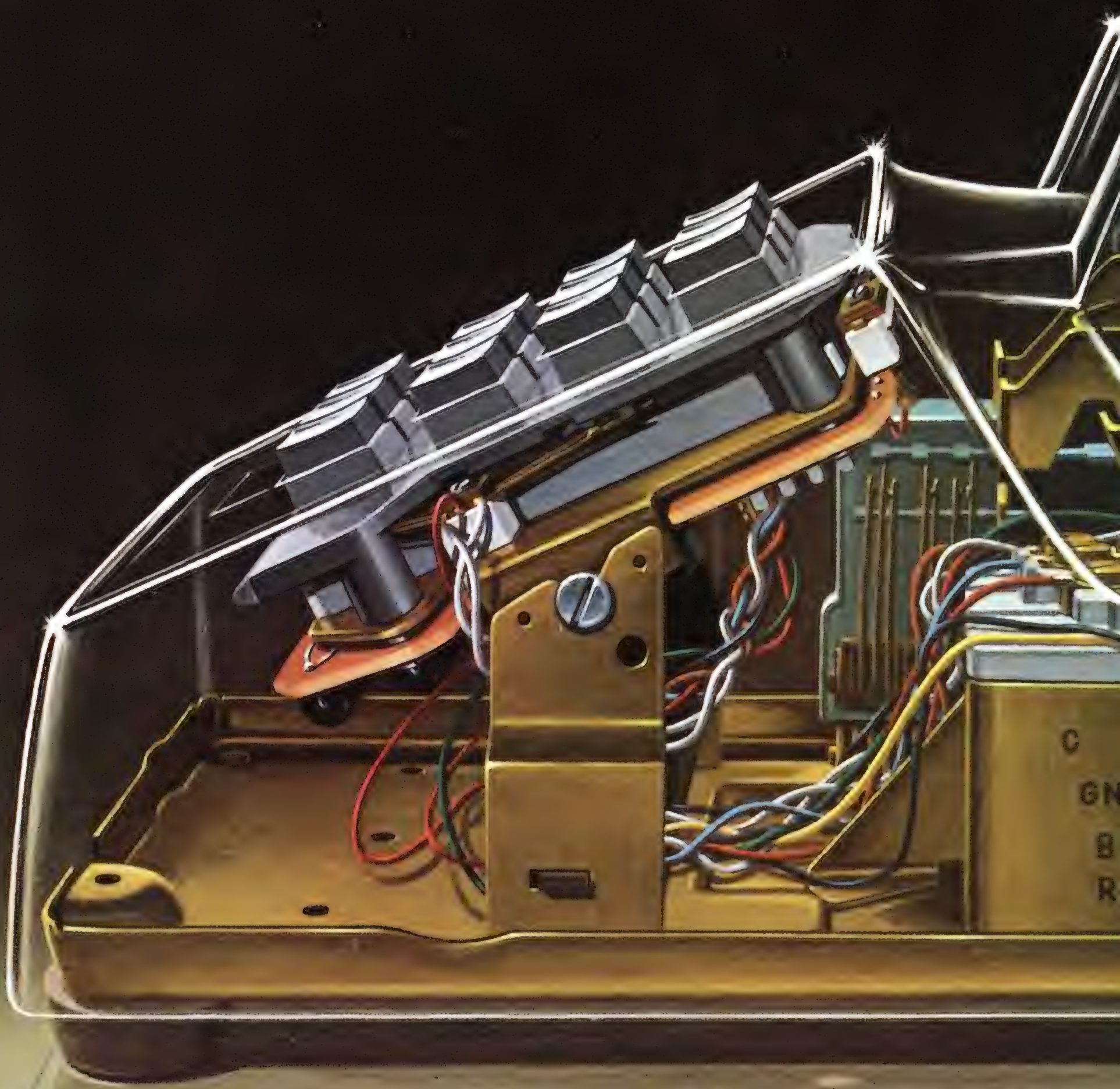

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By Loren Eiseley

Poignant work of tampering with prehistory

A noted anthropologist and poet reflects on the abrupt and permanent change in vision that can occur to a time-traveler

Always, standing above excavations, my own or others upon which I labored, I have been both excited about what the shovel would reveal and disconsolate and stricken at the sacrilege done to the past. Once, high on the side of a sullen mountain bastion in Texas, our scouting party had unearthed in a cavern a child's skeleton tenderly wrapped in a rabbit-skin blanket and laid on a little frame of sticks in the dry, insulating dust. An assemblage of bone needles and a "killed" (broken) rabbit stick to accompany the dead had been tucked away with the child.

I stood silent and was not happy. Something told me the child and its accouterments should have been left where the parents intended before they departed, left to the endless circling of the stars beyond the cavern mouth and the entering shaft of sun by day. This for all eternity. Yet I knew also the valley population was growing. Vandals and pothunters would inevitably discover the child's resting place. Eventually all would be crushed, broken, or sold for antiques in the valley below. In the end, the devastation—on a smaller scale, for these were a simpler people—would be as great as that which had befallen the pharaohs. Here, perhaps, the institution for which I worked might at least rescue what would otherwise be destroyed or dispersed.

"We can give all this to the local museum," commented the expedition leader abruptly. I turned in some astonishment. "It will help to cement relations, keep the locals interested," he continued practically. The one thing he did not mention was the fact that the local museum was largely a dream in the mind of one or two town collectors who had been instrumental in calling our attention to the shelters pocking the face of the cliff.

"But . . ." I started to protest.

"Nothing," grunted the curator, who was passionately addicted to the pursuit of terminal Ice Age man. "We don't want to bother with this stuff. Let the locals have it. We've got to go deeper, much deeper."

I stood in the cave entrance a moment longer looking across the distant valley toward the Rio Grande, holding the burial cradle and the cuddled child in my arms. A man could do very little with his superiors and not be thought mad. I set the cradle gently down beyond the debris of our excavation. The picks went on falling to no great purpose in that place. What eventually became of the contemplated museum I never knew, nor of the child carefully wrapped in a rabbit-skin blanket, nor the tools intended for its after-existence. Wasted, really, wasted because the director had a mania for one thing alone, the people of the ice.

He will have his coveted place in the histories of archaeology, but, as for me, my mind ran painfully back to a tiny graveyard filled with miniature golden crosses that I used to erect over the graves of dead birds in a weed-filled lot next to my childhood home. I whittled the crosses from wood and painted them with some liquid gilt that my mother used on picture frames. One day a man with a scythe cut down the weeds and took away the crosses, as I watched, too timid to intervene, from the steps of our porch.

Now a man grown from that stricken young boy, I could have spent a day up there on the great range just listening to the wind and talking to the child, murmuring to it across the centuries. We would go down the mountain, we diggers, and the cradle and its little occupant would be handed over to others. I have never revisited the spot. I do not believe the local museum exists, and the urban tourists roar ceaselessly by on the throughway below the giant peak.

Other men have had their mingled share of triumph and remorse in these episodes which have a way of striking hardest in great deserts. Crouching before Tutankhamen's burial chamber, deciphering with difficulty the royal identity seals, the scholar James Breasted felt the whispering, whimpering change pass over him as the fresh outside air began to affect the clothing, the furniture, the textiles, immured in a dead chamber for almost 4,000 years. Already he knew with

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"... the child should have been left ... to the endless circling of the stars beyond the cavern...."

Pyramids in these paintings (above, it is tiny at left center) symbolize the often impenetrable past.

bleak certainty that what was done could never be undone. Softly, secretly, the molecules that had held their place through 40 centuries were loosening their hold. "The life of the superlatively beautiful things around me," he recognized with a professional eye, "was now limited." Theft and cupidity in the decades to come would play their role. A grandeur was departing even as men strove to cling to the possessions of a god-king. In the end Howard Carter and Lord Carnarvon, the discoverers, would be at odds and die unhappily.

Illustrations by Jonathan Meader

" . . . some fine day, the kaleidoscope through which we peer at life shifts. . . and everything is reordered."

Breasted, the greater Egyptologist, knew that not even the protection of a museum would long suffice to defend the property of a pharaoh.

Men should discover their past. I admit to this. It has been my profession. Only so can we learn our limitations and come in time to suffer life with compassion. Nevertheless, I now believe that there are occasions when the earth tells our story just as well, when the tomb should remain hidden, the dead man masked in jade be allowed to lie sleeping at the temple's heart, and the temple, in its turn, repose beneath the crawling buttresses that mark the encroaching rain forest.

In the year 1975, 21 people died in an air crash at the great Mayan religious center of Tikal in Guatemala. Strange, is it not, that 21 tourists born over a thousand years after the fall of the old Mayan Empire, and only aware of it because of the archaeological excavations of the last two decades, should be drawn to that spot and die—die on a Guatemalan airfield specifically erected to draw the curious to the ruins? "The past is as open to development as the future," John Meerloo once observed. Here was a perfect example. Twenty-one people died who might otherwise have gone their separate ways in life. They died from curiosity about an alien city supposedly dead many centuries ago, but now resurrected from oblivion. Ten years earlier the past could not have extended such an arm into the future. Dead gods could not have fed once more on living victims.

I pretend no moral judgment. I only say that to tamper with the past, even one's own, is to bring at times that slipping, sliding, tenuous horror that revolves around all that is done, unalterable, and yet which abides unseen in the mind, so that it may draw disaster from the air, or make us lonely beyond belief.

I have had such an experience and it began, I am sure, in Egypt, though I have never dug there and indeed was an impressionable graduate student when I first encountered the story in the archives of the University of Pennsylvania library.

It was a long time ago that Herbert Winlock of the Metropolitan Museum of Art made the find at the tomb of Meket-Rē' at Thebes. No one, except perhaps James Breasted himself, would have had the sensitivity to see it as it was. The episode took place around 1920, just after the first World War, and some would have refused the concession to dig, because the noble's cenotaph had long been rifled.

But men of power in the Nile kingdom believed

with a touching simplicity that you could take everything with you in miniature; your little fish pond of hammered copper that would hold water, your spotted cattle, your pleasure boats, musicians, serving girls, even yourself in effigy. It was a more sophisticated version of what I had seen by the side of the dead child.

It was a gentle game, a game of childlike make-believe. There were wood carvers whose duty it was to create the pleasant palace and the precious palms, everything to insure that life would go on with no loss of status, that there would be an oarsman at the pleasure boat throughout eternity.

I thought, turning the pages of Winlock's report over a decade later, how enticing it would be if they truly believed, there in civilization's dawn. If the funeral toys *really* comforted, if we could still, in some magical manner, be transported to where little figures in wood forever defeated the sting of death. I wondered, grubby student among old books, if they genuinely meant it, if they had known a secret I had tried in a cruder, unskilled way to reproduce with my gilded crosses. How similar we all were across the millennia. Herbert Winlock convinced me by the power of his own imagination that something *did* linger in the little carvings, that men *had* believed in the miniatures they hoarded against the moment of their deaths. Indeed, in the first instant of discovery he had seen them alive.

His discovery came almost miraculously in an utterly gutted corridor before the entrance to the vandalized burial chamber. Meket-Rē' and his treasures were long gone. But Meket-Rē' had had a secret. In a crack of the rock floor Winlock's foreman had noticed a trickle of sand ebbing away. Men had striven with matches to see through the dark fissure. Finally Winlock had been summoned. He brought a flashlight.

The sound of silence

And there, he wrote, as his torch penetrated the darkness of 4,000 years, "I was gazing down into the midst of a myriad of brilliantly painted little green men going this way and that. A tall slender girl gazed across at me, perfectly composed, a gang of little men with sticks in their upraised hands drove spotted oxen, rowers tugged at their oars on a fleet of boats. . . . All this busy coming and going was in uncanny silence, as though the distance back over the 40 centuries I looked across was too great for an echo to reach my ears."

Meket-Rē', unlike myself, had successfully evaded the man with the scythe. His sarcophagus was gone, his real life treasures were gone, his halls lay in ruins, but with a child's mind like my own, though infinitely more astute and powerful, he had outwitted the vandals. In a miniaturized chamber cunningly concealed beneath the floor, his very self, his estate, his ladies, his fish ponds and his cattle flourished while Rome and the Dark Ages rose and fell.

He had possessed a remarkable sophistication. "Damn them all," I could hear his voice across the centuries. "I know the sly officials and the tipped-off robbers will come, but we, we, myself and all I loved, will live on beatified, invisible, while storm and violence trample on the floor above." What was the secret incantation for the transference, I wondered desperately. What had Herbert Winlock thought in that instant when all seemed living? Or had the little figures really existed as his first excited glance implied? Were

Tampering with the past

they stunned into silence by the shattering light of modernity? No doubt the discovery was a great one, but I suspect, if the choice had been allowed me, I would have reacted with the guile of Meket-Rē'. I would have betrayed my profession, sealed off the cavity, and prayed that a second incantation had been held in reserve against accident in that tiny chamber.

Perhaps there is no precise language in which to express such thoughts. One comes into life with certain attitudes and one is inculcated with others of our time. Then, some fine day, the kaleidoscope through which we peer at life shifts suddenly and everything is reordered. I am sure something like this happened to Winlock as he stared into that tiny cavern, but the spoil, immobilized the moment the light beam struck it, was gathered up by dedicated men.

One does what one's time dictates, does one not? One does what one is ordered or expected to do, not necessarily because one is a coward but because one is a trained, conditioned professional. The unexpected event, if it comes, leaves one fumbling.

One exists in a universe convincingly real, where the lines are sharply drawn in black and white. It is only later, if at all, that one realizes the lines were never there in the first place. But they are necessary in every human culture, like a drill sergeant's commands, something not to be questioned.

Winlock happened to be an archaeologist who saw the lines shift and dissolve. A blink at the right moment may do it, an eye applied to a crevice, or the world seen through a tear. Then, to most of us, the lines reassert themselves, reality steadies out. It is better so. Every now and then, however, there comes an experience so troubling that the kaleidoscope never quite shifts back to where it was. One must then simply deny the episode or adjust one's vision. Most follow the first prescription; the others never talk.

I have mentioned that there was a kind of frenzy that seized men about the events of the terminal ice as they were interpreted in the late Twenties and early Thirties. There were no precision methods of dating then, and many bitter feuds arose among scholars. A kind of wild surmise, later to be proved correct, proclaimed that man had a much greater antiquity in the Americas than the conservative "establishment" would at that time accept. It is all in the books now, but in the days of the Dust Bowl, beautifully flaked chalcedony dart points were lying ever more exposed in sand blowouts as the topsoil blew away. There were rumors of such points found within the fragmented skeletons of extinct, longhorned bison, and great contention existed as to when the creatures had vanished.

Dead lakes, like those I had earlier prowled over in the Mojave Desert, were explored in New Mexico, sometimes with spectacular results. It was natural that the desert west of Carlsbad Cavern should come under attention, just as did that dust-filled shelter that had preserved the culture of a later time on the slope beneath the Texas mountain.

Mysterious maze

The terrain around Carlsbad in those years had certain peculiarities. Carlsbad Cavern itself is one of the largest in the world, but in that time, though open to tourists, its full extent was unknown. Seeping underground water over long ages can produce enormous mile-long passages in limestone deposits. In the course of ages these streams can descend from one level to another, leaving the upper caverns dry. Holes may twine off in all directions. Huge chambers may form and long ages later collapse. Sudden drops into lower abysses may endanger the unwary. The Carlsbad country, far beyond the known scope of the cave, was as riddled as a termite nest. Sometimes on the flat desert floor one might come upon a fissure whose depth was anyone's guess.

Sinkholes, which are really collapsed sections of cavern roof, have sometimes trapped and held extinct animals out of a time dating back to man's first penetration of the region. So the hunt went on, decade after decade, and, of course, amateur explorers have never been able to leave dark openings alone.

Inevitably, word was brought to us by one of these amateurs that there was a cave in the back desert where animal bones, possibly those of an extinct camel, had been found in the slide of an overhead sinkhole collapse. Every report of this nature had to be checked, though most were bound to prove baseless. We went by a way I would never be able to retrace. A good-natured Catholic priest guided us to the site, and we were provided with what we were assured was a rea-

"Men should discover their past. . . . Only so can we learn our limitations and come . . . to suffer life with compassion. Nevertheless . . . there are occasions when the earth tells our story just as well. . . ."

sonable sketch of the passages explored by the original visitors. The map, we were to discover only later, was correct up to a point, but it failed to provide important information about other side passages.

The site was a curious one, though we came well equipped for the first part of the adventure. A rather inconspicuous tube, a kind of giant wormhole, descended into the depths of a low hill. Here we paused to examine our map while the jolly fat priest explained things to us. We would descend the tube carrying a rope ladder intended for such purposes. At the end of the tube was a sheer drop into nothing except for a giant stalagmite to which the rope ladder might be attached. Many feet beneath us was a huge chamber, which we were really to enter through the ceiling. From that chamber, our hastily constructed map informed us, separate corridors radiated. We were to take the one indicated and follow its course to the rockslide and the suspected bones.

In that spot upon the ceiling, after a tortuous, winding descent, the priest paused. All good priests, I thought briefly, have a right to pause above unfathomable abysses. "I am too heavy for your ladder," he explained. "Rope it around this pillar and I will stay up here and wait." We could not complain. He was giving us the flashlight. He would have to sit in the dark alone.

I shot the light over the edge. The chamber was enormous, the climb, even with the ladder, not inviting. We braced things as we could and I went over the edge, followed by my companion. Four separate corridors extended in opposite directions from the main chamber. We tried to follow the trail delineated by the map. We went deeper and deeper until we were crawling over tiny stalagmite crystals that pricked our knees like needles. We could no longer walk. We were creeping now, and the air seemed close and very bad. Finally, by mutual consent, we halted. The batteries in the

lamp were beginning to show signs of stress. "Shut it off," I said. We sat for a moment in stifling silence.

I knew just one thing in our favor, though not really pleasant. Up where the priest waited there was only a single way out. He could not get lost even without a light. But without a light how long would he sit there? How long would it take him to make his way up that tunnel in the dark and drive to town for help? Our tension mounted. Men could panic with claustrophobia under these conditions. They sometimes crept on, losing themselves in a labyrinth when they should have waited for help where they were.

The rested lamp was relit and cast behind us. All the shadows were different and remained inscrutable. Our lungs labored in the low, flat dark. We could not recognize the way we had come. "Stay," I thought at first, "stay and engage in as little exertion as possible. But how long will it be before the priest knows we have vanished? He knew we had an indefinite distance to go." I respected his courage sitting alone up there in the dark. I cast a ray of light behind us. "Look," whispered my companion in timid hope, "we are the first people ever to venture in here. We have been climbing over those tiny stalagmites, breaking them. Maybe we can follow our own path out of this place."

At this point, in the still, close air, we made our decision. We would not wait. Slowly, husbanding the light, we began to work our way back through the fragmented crystals. Finally we came to a place where a long forgotten mud torrent from the desert floor had cascaded down a corridor. There were footprints in it —undoubtedly those of the map makers. Slowly we traced them backward with much trial and mistaken effort. After what seemed an infinite period of time, we emerged once more into the chamber through whose roof we had descended. Warily we flashed the light over the still hanging ladder, flashed it again toward the far-off ceiling. A voice floated down, patient but concerned. "Say, you fellows," called our friend, the faithful priest, "time goes awfully slow up here without a light. I was beginning to wonder."

We looked at each other, each man, I suppose, with his own private thoughts. "All right," I called, "give us a minute, we're coming up, but the light is weak. You seem awfully small. Just steady the ladder. Everything is under control." It ought to be, I thought, having a priest at the other end of the rope.

Slowly my companion ascended, swaying uncertainly in the tiny light while I steadied the ladder from below. Then I followed. After catching our breath we stumbled on our knees up the tunnel, dragging the ladder with us. There was nothing much left of the light, I thought, groping. It was going out. We must not make that mistake again.

But the mistake was already made. In the end, you see, my angle of vision was twisting in a way opposed to Winlock's; it was we who were now reduced to pygmies. By the time I stood at the cave entrance I was looking at life, at my companions, at the traffic below on the road, as though I had just arisen, a frozen man, from a torrent of melting ice. I wiped a muddy hand across my brow. The hand was 10,000 years away. So were my eyes, so would they always be, and still, like Winlock, I did not find a way to speak.

The modern world was small, I thought, tiny, constricted beyond belief. A little lost century, a toy, I saw suddenly, looking upon our truck and pretentious archaeological gear with that stunned insight which had overtaken Winlock in the tomb of Meket-Rē'. Winlock had looked into a cavity and seen the past in motion, and stilled it with his torch. I, and here I looked curiously and distantly upon my associates, had arisen from some kind of indefinable death amidst stalagmites and glacial mud 10,000 years removed. That mud was on the battered flashlamp as we neared the portal. It almost dimmed us to oblivion.

"We are dwarfed, dwarfed," I muttered to myself alone, "the tiny projection of a lantern show."

I have never again seen men so minutely clear, though I climbed with the others into the pick-up truck and held my peace. "Dwarfed," I said again under my breath, seeing ourselves moving with tiny gesticulations across an infinite ice field into whose glare we finally vanished. It was like a glimpse through the slitted bone with which Eskimos protect their eyes from snow blindness. I have never had occasion in the years since to think upon us differently. Not once.

"The modern world is small, I thought, tiny, constricted beyond belief. A little lost century. . . ."

Text and photographs by Harvey L. Gunderson

When the big bull bellows, turn your head

The roaring of the male bison signals the onset of rutting season. It leads to a few clashes and much frustration

It was early morning. I was sitting on a high knoll in the sandhills of Nebraska, in an eight-square-mile pasture of the Fort Niobrara National Wildlife Refuge, a small piece of the original mixed-grass prairie. Coyotes had been barking before dawn but, as the sky brightened, they ceased. A few grasshopper sparrows and western meadowlarks had come to life. In the distance, the call of an upland plover pierced the still morning air. I would not have been surprised to see Lewis and Clark appear on a nearby hill.

But what dominated my senses now was the bellowing of the bison bulls as they challenged and battled. I had come to record these sounds, which would later be converted to sonograms in the laboratory. From these, such things as duration and frequency amplitudes could be calculated, and we could begin to learn something of the mysteries of rutting-mating rituals.

The explorers and early frontiersmen had also been drawn to and awed by these sounds. John James Audubon wrote in his journal of Saturday, August 19, 1843, "Wolves howling and [buffalo] bulls roaring just like the long continued roll of a hundred drums." This was Audubon's fourth day out from the popular western fur-trading post, Fort Union, at the confluence of the Yellowstone and Missouri Rivers, on what is now the Montana-North Dakota border. He and his party were traveling on the Mackinaw barge *Union,* and at night stopped on the shores of the Missouri River. He reported their seeing ". . . Bighorns, some Antelopes, and many Deer . . . ; one Wolf, twenty-two Swans, many Ducks." But it was the buffalo that commanded their attention.

A few days later, on Monday, August 21, this entry appeared in his journal: "Buffaloes all over the bars and prairies, and many swimming; the roaring can be heard for miles." Although the Canadian explorer Henry Youle Hind reported some years later that the sound traveled "fully twenty miles," this is a rather extravagant claim. Under the ideal condition of still air, three miles is possible. Another western explorer, Edwin James, who accompanied Major Stephen Long's expedition to the Rocky Mountains, was moved to write on August 18, 1820 ". . . throughout the night, the roaring immense herds of bison, and the solemn notes of the hooting owl were heard . . . ."

Neither the noise of the moving herds nor the immensity of them can be doubted, although it strains the imagination to consider that a single herd larger than the state of Rhode Island was observed by a 19th-century traveler on the plains. Another traveler, Nathaniel Langford, the first superintendent of Yellowstone National Park, wrote that in 1862 "We thought the herds of 5,000, 10,000 or more, very large herds, until we got beyond the second crossing of the Cheyenne River. . . . We heard a distant rumbling sound which we thought was thunder. . . . Soon we saw a cloud of dust rising in the east, and the rumbling grew louder and I think it was about half an hour when the front of the herd came fairly into view. . . . From an observation with our field glasses, we judged the herd to be 5 or 6 (some said 8 or 10) miles wide, and the herd was more than an hour passing us at a gallop. There seemed to be no space, unoccupied by buffaloes. . . ."

The males become vociferous

The American buffalo or bison, as it is more correctly called, since there are several kinds of buffalo, is usually a quiet and wary animal. But during the months of July and August the males become nervous, irritable and, above all, vociferous, and so it was that Audubon, Hind and James, among many frontier travelers to the American West, were especially impressed during these months.

These are the months of breeding, more often called rutting, and the bigger males become very belligerent. Bison are gregarious mammals, as are most ungulates living on the plains areas of the world. During most of the year the bison herds consist mainly of small units composed of females and young (including bulls

Challenging bull lowers head and sticks out tongue. Beard length helps show how threatening he is.

up to four years old). The older (over four) bulls are in smaller groups of 12 or less at the periphery of these mixed or core herds. The bachelor groups are inclined to spend their time resting, eating and ruminating. But with the coming of the rutting season their behavior changes. The excitement begins slowly as they periodically join the core herd, examine the cows, and then leave the herd. As the rutting season progresses, more bulls join the herd and they stay for longer periods of time. Cows and bulls both react to the mating fever.

In nature, conception is no accident, and it is most often accomplished by those individuals with the greatest attributes for survival. Thus the most mature and largest of the bulls vie for any cow that is becoming receptive to their attention. But challenge is constant. Among bison, as among domestic cattle, the male establishes a temporary "tending bond" with a female as her receptivity increases, but leaves her shortly after breeding is accomplished. Such tending bonds may last only a few hours or they may last several days. This is in contrast to what occurs among most hoofed mammals, which feature harems of females each maintained by a dominant male.

There seems to be a straight-line dominance hierarchy among bison. For example, animal number one in a herd will be male, larger in size and weight than all others, and will be dominant over every animal in the group. Animal number two, usually another male, will be dominant over animal three and all others. Animal three, often a female, will dominate weaker females and males her size.

But this is constantly being tested: Threatening and fighting during the rutting season are common even between bulls that are not defending cows. At other times of the year it occurs infrequently, but an individual which demonstrates his dominance now will probably intimidate a subordinate without a fight during the breeding season. This saves a lot of energy, and during the breeding season there is little to spare. Even bulls successful at avoiding combat have been known to lose as much as 300 pounds during the rutting season. Aside from tests of physical strength, it is believed that the size of the mop of hair on the forehead and

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In mating period, males join the herds; pawing the ground becomes violent as the tension mounts.

As cow grows receptive, the male tries to maintain a bond by tending her till breeding is completed.

the size of the goatee or bell may also indicate the dominant animals.

The threat that is most frequently used, however, and the one that operates at the greatest distance among bison, is vocalization. If the competitor presses, the bellowing becomes louder, and if there are many bulls in the vicinity, they may all become participants. One can almost feel the increasing tension in the air; certainly one hears it. The challenge usually results in one of two kinds of reaction: withdrawal by one bull or a fight. If one combatant withdraws, he may simply move away or he might paw the ground and wallow. This last action is called by ethologists (students of animal behavior) a "displacement activity." To avoid a fight is to conserve energy which might better be used for tending than for fighting. In the animal world there are many ritualized forms of display or behavior which reduce the threat of attack and thereby avoid fighting. Some appeasement postures can indicate complete surrender, such as when a dog or wolf rolls over on its back in helplessness at the approach of a dominant dog or wolf.

Redirection of the attack is nature's most ingenious answer for directing aggression into harmless channels. Thus a subordinate bull bison, when challenged by a dominant one, finds itself in a conflict situation and must choose between fight or flight. Rather than engaging in what might be a losing struggle, or retreating, his urges are redirected into a compromise activity. He may begin to paw the earth, tear up the ground with his horns and hooves, and finally roll in the dust.

Wallowing occurs at other times, but not with such intense ferocity as when facing an adversary. Pawing is common in other hoofed mammals such as domestic bulls, musk-oxen and ibex. Such displacement activity is common in the animal world. Birds quite often preen themselves and smaller mammals groom themselves to avoid conflict. Female bison also wallow. Under these circumstances it is probably a kind of grooming to rid them of insects, cool them off or in other ways make them more comfortable. Often in animals one behavior pattern is simply modified for another purpose. Thus wallowing as a grooming or comfort activity has been modified in bulls to serve as a displacement activity in conflict situations during the rutting season.

If the bargaining by threat does not end in withdrawal, a fight starts. One bull approaches the other (or both move toward each other), sometimes slowly, sometimes in a stiff-legged walk, and sometimes in a spectacular charge, with the muzzle slightly more extended than usual, and most often bellowing. Just before contact the muzzle is held low and in, so that the upper parts of their heads meet first. Heads and horns clash. The short inward-curved horns serve to lock them in head-to-head contact, for if one of the combatants is able to get to the flank of the other, he can, with a slashing upward swing of the horns, open up a mortal wound.

Although battles to the death are the exception, a fight between two mature bulls, each of which can weigh more than 2,000 pounds, is awesome. Their tails straight up and twitching, humps arched in curves of power, dirt flying from hooves scrabbling for purchase, they shove each other back and forth like locomotives. Strong necks act as shock absorbers and, aided by a thick mat of hair extending from the top of the head down onto the forehead, dissipate some of the power of the impact. (In one instance a .30/06 rifle fired head on into this hair from 30 feet away did not reach the bone of the skull, but became dissipated in the mat of hair.) The combat may be short, terminating after a few violent shoves, or may end in a rout.

Signals of submission

Several signals of "intent" to attack also occur among buffalo. A position with head held low, muzzle back and tail straight up, seems to be a threat. If the opponent submits, the head-low position can be the preliminary to pawing and wallowing. Several submission signals are used by the bulls, either to prevent attack or to end a fight. Most often, a submitting or surrendering bull holds his head to one side or the other, or he may, when the opponent is vicious, turn 180 degrees and get out in a hurry. Whatever form the submission signal takes, it usually stops the attack, although I have seen fights when a submission seems to have been missed by the opponent.

This repertoire of threat and submission signals, at the least, conserves energy, and helps insure conception. And on the whole it seems to save lives.

When neither male gives in to the other's threats, 4,000 pounds of bison beef clash, head-to-head.

Rather than fight, a challenged bull often takes out frustration by violently pawing the dusty ground.

If we don't wash our wastewater he may have to drink it.

Every day, a million people living in a typical American city generate approximately 500,000 tons of wastewater.

Sewage systems in many cities cannot cope with these amounts. So wastewater isn't cleaned thoroughly before it's discharged into rivers and lakes, and contributes to their pollution. The same rivers and lakes we rely upon for our drinking water.

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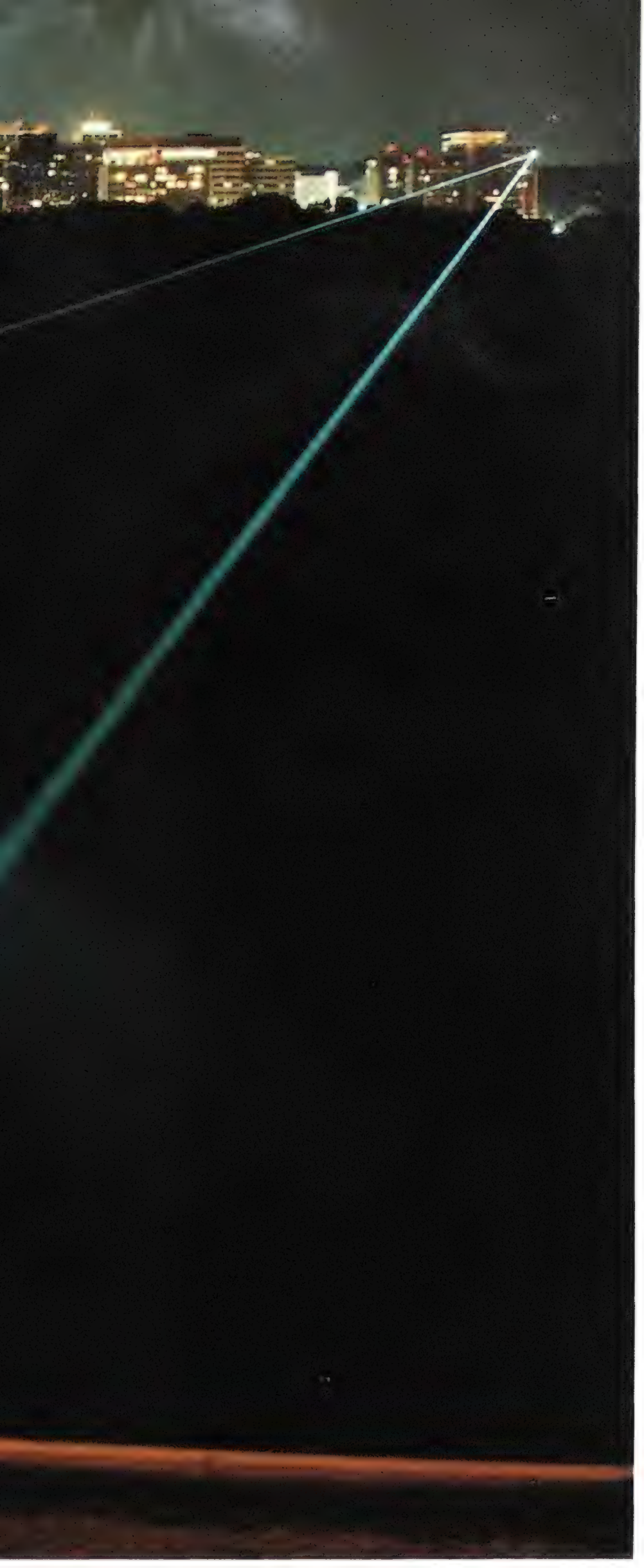
UNION CARBIDE

Today, something we do will touch your life.

From the Virginia side of the Potomac, three gemlike shafts of piercing laser-light cut a geometric design through the night sky to form Rockne Krebs' *Irish Light*. View is from terrace of Kennedy Center.



By Benjamin Forgey

A new vision: public places with sculpture

Innovative constructions of shapely forms in city and country are changing how things look—and are looked at

Late-evening commuters crossing one of the Potomac River bridges from Washington to Virginia any one of 30 spring nights a year ago must have been startled to see, coming out of the gathering darkness of the Virginia hills, three green shafts of light, each of a preternatural brilliance.

Visitors to the John F. Kennedy Center for the Performing Arts got an even better view. The piercing light beams, with their source atop high buildings on the Virginia side barely distinguishable, skimmed the top of the heavy thicket of trees on Roosevelt Island and, mirrored in the darkening eddies of the river below, came to rest in pale oval spots on the white marble walls of the Center.

This evocative spectacle contained more than just a touch of magic. It was created by Rockne Krebs, an audacious artist whose principal medium has become light itself (in this case harmless, beautiful, argon-ion laser beams) and whose characteristic setting is nothing less than the phantasmagoric nighttime collage presented by our 20th-century cities.

In another section of Washington, not far from the vista where Krebs created this exhilarating mark (the apposite title of which was *Irish Light*), there is a quiet, well-ordered spot that invites the stroller to sit upon a bench, and perhaps contemplate one of the more unusual architectural endeavors taking place in 20th-century America.

This is a garth (a small courtyard surrounded by cloisters) beneath the soaring buttresses of the north

George Sugarman's *Kite Castle* is incised gracefully into space on New York's Hammarskjöld Plaza.

Greeted by some with less than enthusiasm when it arrived in Grand Rapids, Michigan, six years ago,

transept of the Washington Cathedral, a building designed with 14th-century models in mind and, in the time-honored manner of Gothic churches, still unfinished after 68 years. What makes this tiny, tastefully landscaped space so unusual is its centerpiece, a sculpture-fountain that is an anomaly within the grand design of the cathedral, inasmuch as it is one of the few sculptures among more than 3,000 inside and outside the building that looks at all as if it were designed in our own century. It was constructed by artist George Tsutakawa of Seattle in an abstracted lotus pattern formed of sheets of silicone bronze. The piece completes the space in a most extraordinary way (opposite).

There is a world of difference between Krebs's *Irish Light* and Tsutakawa's sculpture-fountain. Nonetheless, each is identifiably modern, each is life-enhancing, each deals successfully with a given, public space. And,

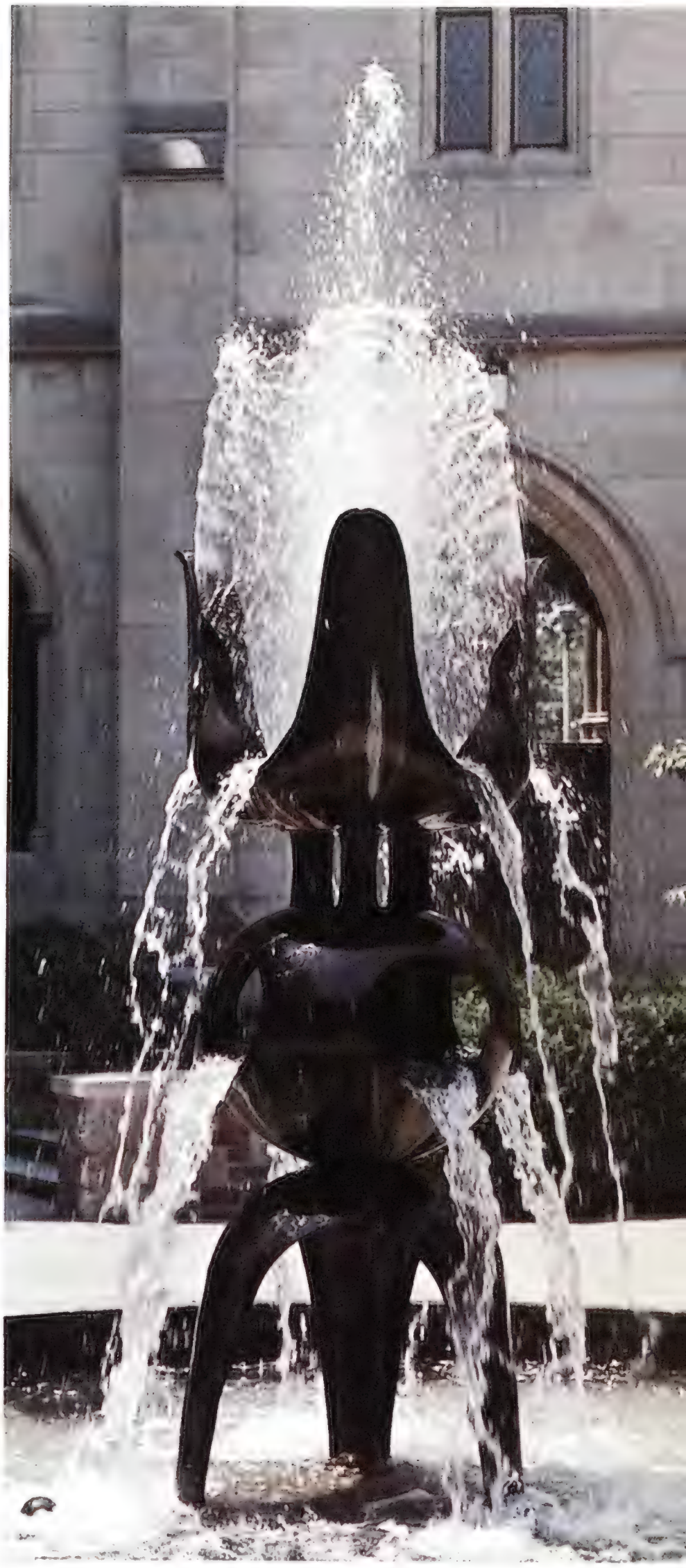
Alexander Calder's stabile, *La Grande Vitesse,*
quickly became focal point of civic pride.

taken by itself, each work is a solitary indicator of the extraordinary surge of interest in public art that has taken place in American cities and towns in the past several years. Public art has been sprouting up all over the place almost as if it had a force and will of its own.

Boston, Chicago, San Francisco, Washington, Grand Rapids, Denver, Atlanta, Tulsa, Honolulu—the movement lacks confining boundaries other than those of the nation itself.

Kimball, York, Seward, Milford, Cozad, Chappell, Sidney, Ogallala, Grand Island and North Platte are Nebraska towns strung across the state along U.S. Interstate 80, hometowns to perhaps 100,000 people but

Washington Star *art critic Benjamin Forgey has a special interest in architecture and environmental planning using the fine arts.*



A small courtyard of the Washington Cathedral
harbors George Tsutakawa's lotus-patterned fountain.

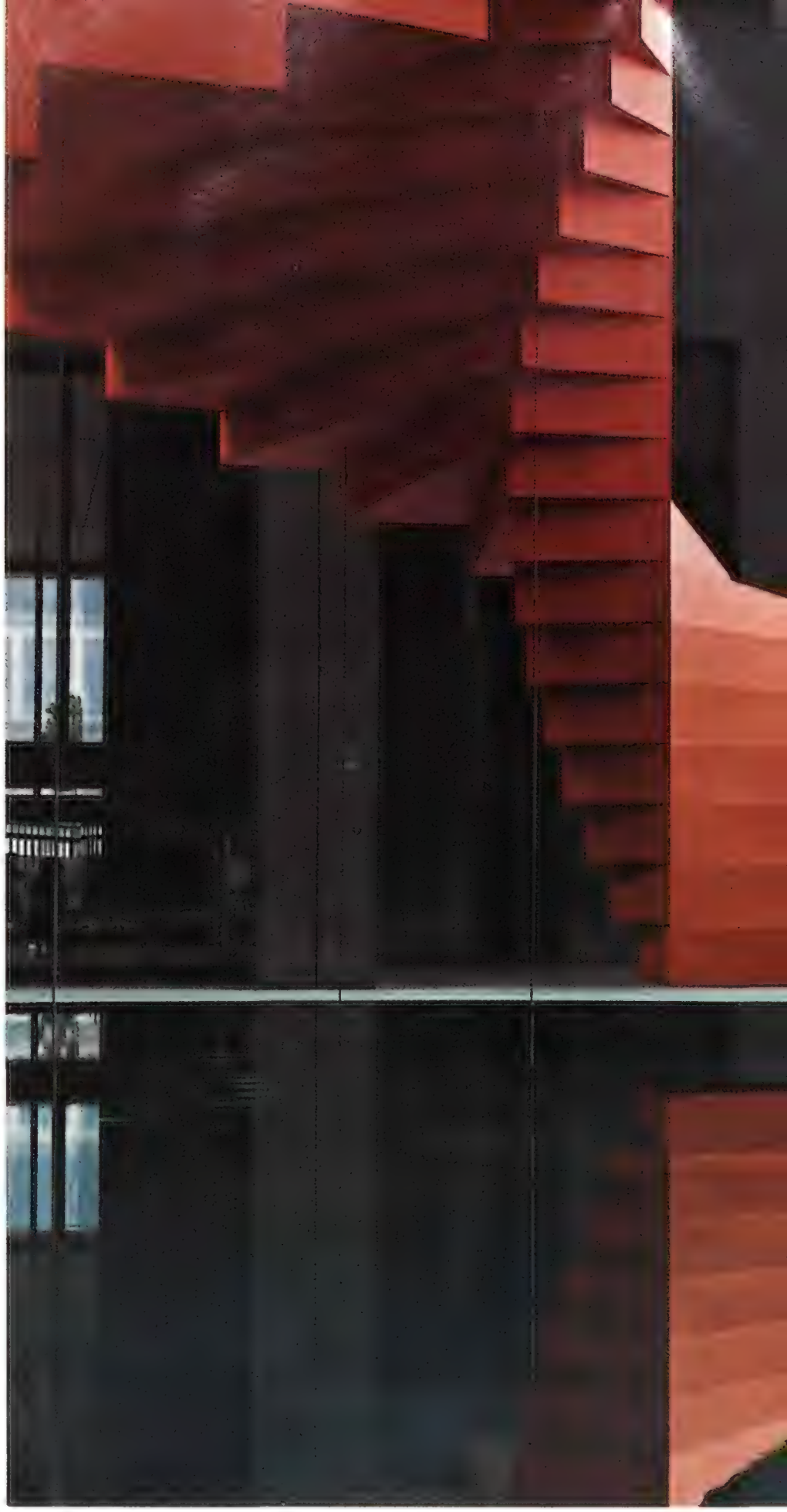
no more than highway markers for millions traveling through. By next July 4, these towns will be marked by monumental pieces of modern sculpture as part of what is proudly billed as the "450-mile sculpture garden," a $650,000 Nebraska Bicentennial project supported by the state and federal governments, Nebraska corporations and, perhaps most importantly (though by no means unanimously), by residents of the towns.

It is difficult to fix a beginning for the current wave of public art. However, it is possible to choose a benchmark event for the new movement: The dedication of Alexander Calder's *La Grande Vitesse* in a spacious new plaza in urban-renewed downtown Grand Rapids, Michigan, on June 14, 1969, was a singular example of the piquant mixture of ingredients characteristic of the new public art. Who at that time would have guessed that Representative Gerald Ford of Michigan's Fifth Congressional District would be the President of the United States five years later?

Ford's conversion, if not to modern art at least to nonrepresentational sculptures by Alexander Calder located in his hometown, followed and mirrored the enthusiasm of his constituents. The question remains, of course, why other Grand Rapidians reacted so strongly and so favorably.

Calder's enormous stabile (43 feet high, 42 tons of red-painted steel) provides a functional grace note for a central plaza in the "new" downtown. Without it the plaza would be an empty space between a set of rather forbidding government buildings. It also provides a focal point for civic pride. City garbage trucks now are emblazoned with decals of *La Grande Vitesse*.

The point is that whether it be a general on a horse or biomorphic forms of painted steel or laser beams, public sculpture, if it is to work in a truly "public" way, must somehow capture the imaginations of the citizens whose public space it occupies.



Herbert Bayer's *Double Ascension* is one with architecture at Atlantic Richfield Plaza, Los Angeles.

The transition from hostility to advocacy, affection, or at least the generally benign neutrality that developed in Grand Rapids has been repeated in many American communities, large and small, where abstract sculpture has been taken out of its customary, sheltered context and displayed prominently for all to see and experience. In Chicago's Loop, where the great steel woman designed by Pablo Picasso was installed in

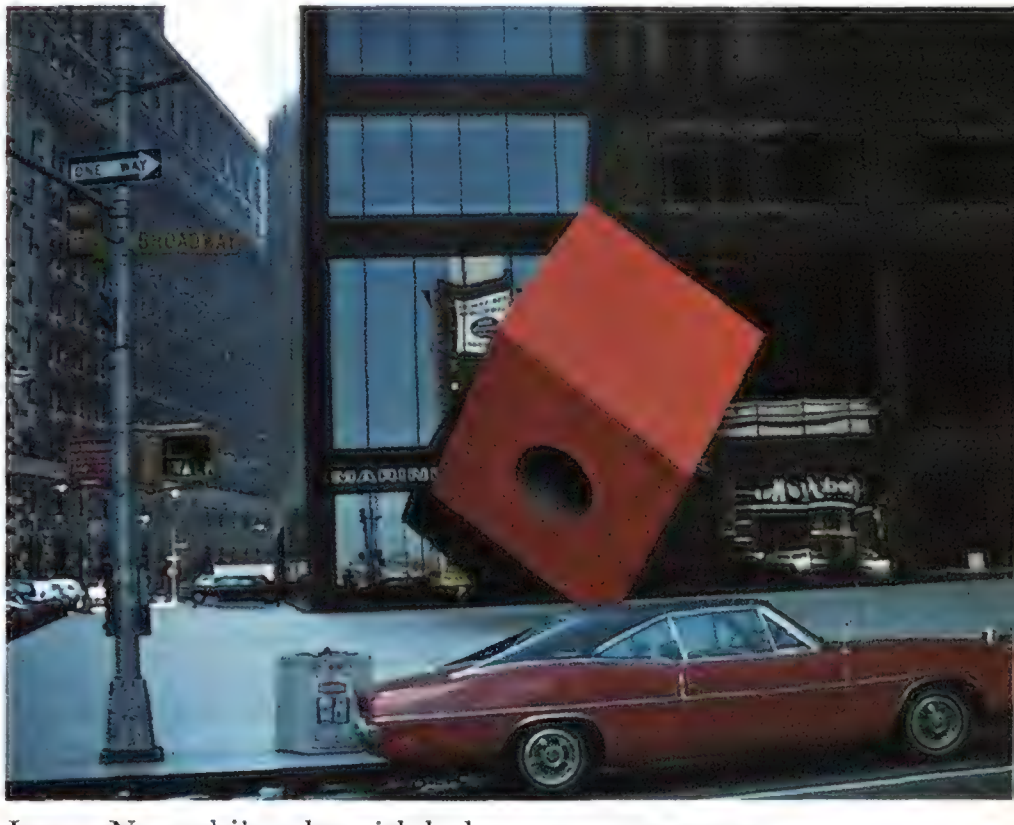
two of his grandchildren. They were cheered and applauded all along State Street, an event that moved critic Katharine Kuh to conclude, "We have at last attained sufficient security to consider art a pleasure rather than a moral obligation."

It is significant that the Calder in Grand Rapids was first financed with a matching grant from the National Endowment for the Arts under a new program to help support "Works of Art in Public Places." This program has grown year by year. It paid out $45,000 in 1967 when the Calder grant was made, and in 1974 dispensed some $700,000 worth of matching grants. The number of applications has jumped dramatically, too, more than doubling almost every year since the program began.

Chicago acquired its Calder as the result of another, and as yet little noticed, government program to commission works of art. This is the Fine Arts Program of the General Services Administration, builder for the federal government and its unglamorous business arm. The GSA project involves spending one-half of one percent of the estimated construction cost for art "not as decoration or embellishment but as an integral part of the architectural design for new U.S. buildings."

At present GSA has more than $2 million worth of art under contract from Honolulu to Philadelphia, and places in between.

There is controversy, of course. The first Grand Rapids person I talked to answered the telephone at the Chamber of Commerce and expressed the opinion that the Calder sculpture was "ugly," a "waste of



Isamu Noguchi's cube with hole punctuates space around New York's Marine Midland Bank building.

the mid-Sixties, the incomprehension and hostility that greeted the sculpture seemed profound (and to some, profoundly depressing).

Well, all of that seemed to have turned into pride and, yes, even joy, by last October, when the city got *its* Calder. When the piece was dedicated (a couple of blocks from the Picasso), the 76-year-old artist headed a parade atop a Schlitz beer wagon, accompanied by

money" and an admiration solely of those people "who like art and all that stuff." It is the "waste of money" criticism in times of economic stress that most concerns government officials directly involved in the new programs. Staff people at the GSA already have drafted letters pointing out that artists get very few of the millions of dollars involved. Most of the money, they point out, goes to fabricators, truck drivers, crane operators and other laborers. (One cannot help feeling a twinge of nostalgia for an earlier bureaucrat, Harry Hopkins, who explained away criticisms of New Deal art programs with the laconic comment that artists "have to eat just like other people.")

A poignant conflict took place last spring in Oakland, where the city council voted to have a large sculpture by Mark di Suvero removed from a plaza in front of the county courthouse, where it had been placed as part of a temporary display of contemporary works since 1967.

Di Suvero probably is the greatest American sculptor to emerge from the large shadow of the late David Smith; he was honored by the French government last spring when it displayed five of his enormous steel pieces in the Tuileries gardens in Paris, and next month the Whitney Museum will open a long-awaited full retrospective exhibition of his work. Di Suvero's Oakland piece was a proud, high, open fretwork of orange-painted steel I-beams, but its form was less obviously a matter of contention than its title, *Mother Peace*, and the fact that the artist had incised a peace symbol into one of the girders.

On the other hand, things appear to have gone swimmingly in Burns Park, a once ill-used stretch of scrub grass in Denver that is one of the more heartening, lesser-known success stories of the new civic art. For seven years now this park has been the setting for an assortment of large, colorful, geometric sculptures, each of which is nonobjective. "Which is to say," as one writer observed, "that it looks like itself and is immediately appealing to the senses and to the spirit."

The sculptures in Burns Park were created by nine different artists, with Angelo de Benedetto as chief instigator. De Benedetto is a wiry, sharp-boned artist who grew up in Paterson, New Jersey, and recalls that "even as a young boy I wanted that mill town to be more beautiful." Since Burns Park, De Benedetto has been making places beautiful with a vengeance. He's been a virtual whirligig of promotion for public sculpture, his own and that of others, in Colorado (where today more than 60 monumental, nonobjective sculptures dot the state parks and campuses) and points east and west.

Although Burns Park is an esthetic success, its larger success is social, as with all works of art in public settings, past and present. De Benedetto remembers with evident pleasure that city officials were a bit fidgety when offered this unusual gift. It wasn't a question of cost. Turning Burns Park into a much-enjoyed sculpture garden cost the city almost nothing. The art works were donated by the artists, who rightfully saw the

venture as a prototype. The issue was that ever-present caution: appropriateness and public acceptance. "We even signed a contract saying that if the people didn't like it, we'd take it down," he recalls.

The Burns Park story has since been repeated many times around the country. So has the conflict surrounding the Di Suvero piece in Oakland. It is difficult to assess something one is in the middle of, while it is happening, but obviously there is enormous potential for social and esthetic misunderstanding on all sides as modern art begins to take its place alongside our highways, streets, and public and private buildings. Obviously, too, there is a great potential for good.

A Philadelphia man, whose name nobody caught, put it his own way two years ago. The occasion was an opening night for another of Rockne Kreb's laser sculptures, and this man was seen making his way—in the rain—down the center of broad, treelined Franklin Boulevard toward the Philadelphia Museum, from which issued two astonishing green beams. Later, when the man was seen walking up the steps to the museum about a mile from where he'd started, he was asked what he thought. "It's like walking into heaven."

In Oakland, Di Suvero's galvanic sculpture angered city council, was dismantled amidst controversy.

Burns Park, Denver, formerly a barren city lot, was transformed into garden of sculpture.

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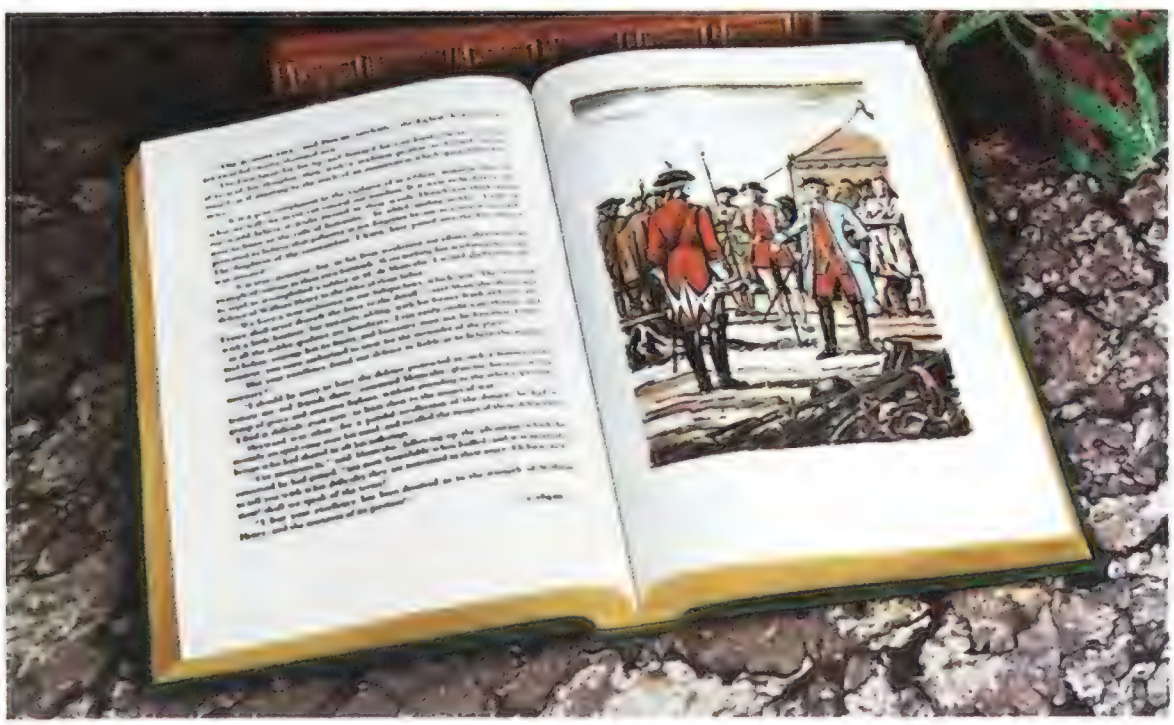

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All ships must pass through the canal in convoy, keep a mile apart and observe a speed limit

By Robert Morse

After eight years, world's shipping is moving through Suez Canal

Cleared of the dangerous debris of two wars, the canal is now being run by the Egyptians with casual efficiency

Robert Morse is a former Life *correspondent who lives in Greece. He wrote about the Minoan frescoes of Thera in* SMITHSONIAN, *January 1972.*

Photographs by Dmitri Kessel

"As in Egypt of old a Pharoah rose who knew not Joseph, so, ere long, a generation will come which forgets Lesseps."

Anyone visiting the Suez Canal in 1975 will soon discover that this quaint little prophecy, published in Britain's *Quarterly Review* in 1876, has indeed come to pass. Poor Count Ferdinand de Lesseps, that indomitable Frenchman who, after so many trials and near failures, brought the canal into being in 1869, mainly through the force of his own will, is barely a

of 13-14 kilometers per hour. This convoy was organized at Suez and is heading northward.

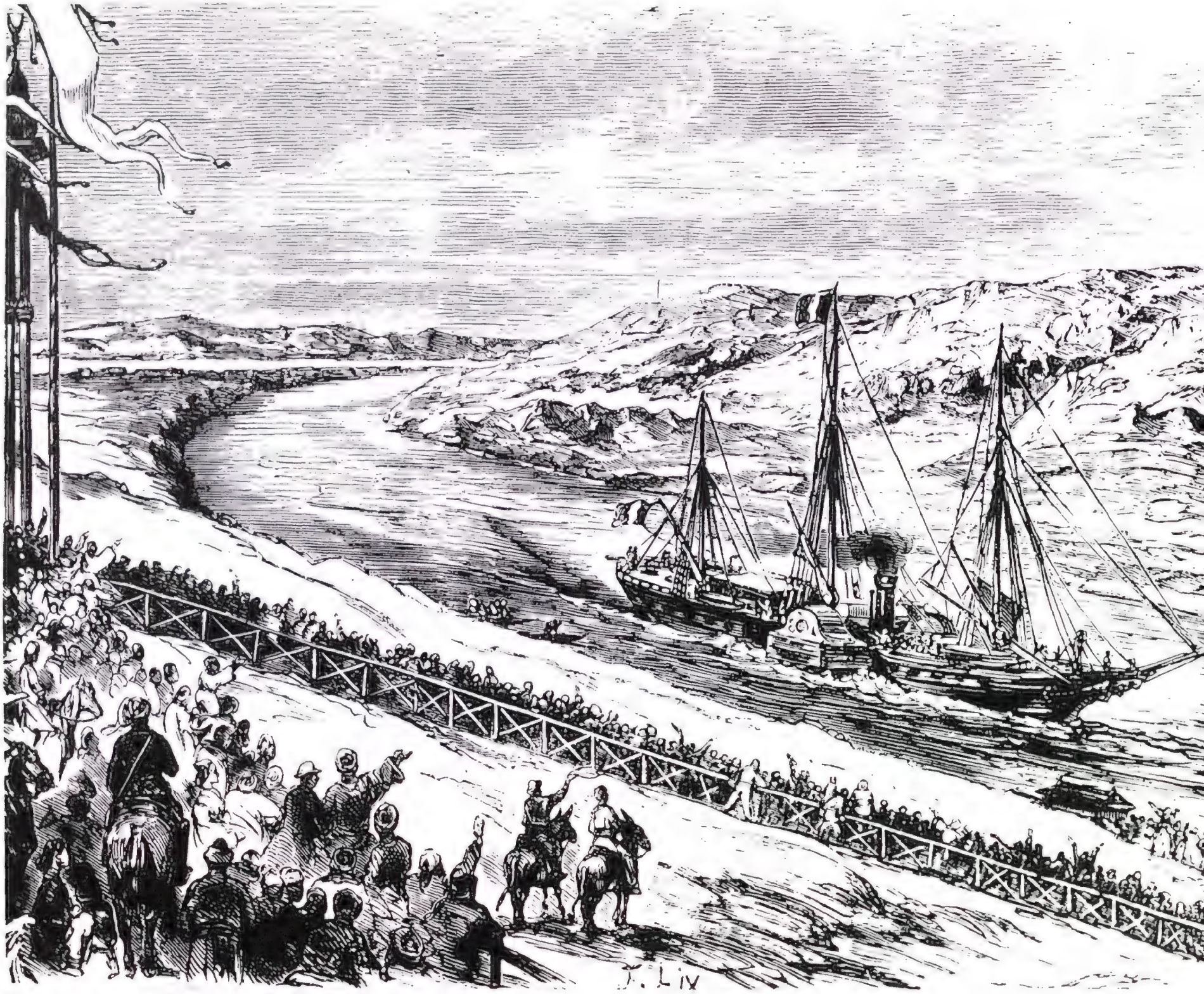
footnote in today's Egypt, if that. Even the statue of Lesseps, which towered over the entrance to the Port Said harbor for so long, has gone; a raging mob dismantled it after Gamal Abdel Nasser nationalized the canal in 1956, bringing an armed attack by Britain, France and Israel and the rest of the world close to a major war. If any reference at all is made to the building of the canal, it is to the 120,000 Egyptians who are supposed to have died doing it.

Today, the canal and its 13,000 employees are fully Egyptianized. A canal official wanted to emphasize that fact: "It's all ours and we're damned well proud of it." When President Anwar Sadat, in a dazzling white admiral's uniform, reopened the canal after eight years last June 5, the emphasis was on the Egyptian achievement. The work of the American, French, British and Russian salvage and demolition crews was praised, but with considerable restraint. Weeks later, a large sign along the canal banks was still proclaiming, "We have opened the canal. We will keep it open." It *is* open, and working, as this article shows.

"Our canal is the cleanest, safest canal in the world," boasted another billboard. That, of course, testifies to a rather remarkable achievement: In the clearing of the canal, everything from ships to tanks to airplanes to 7,500 pieces of unexploded ordnance had to be removed, not counting the nearly 700,000 mines and other explosives cleared from the banks.

A trip through the Suez Canal can still be a quietly moving experience, in some ways almost eerie. Aboard the little freighter M/V *Calavittoria,* even the voices of the Italian crew seemed strangely muted. It was exactly 5 A.M., some time after the reopening, when the *Calavittoria* slipped through the predawn light to take up the No. 2 position in a great procession of 22 ships moving slowly, about one mile apart, into the 101-mile canal which, in a sense, makes the continent of Africa an island.

With desolation on both banks, we might have been entering a deserted no-man's-land, making a kind of departure from the real world. There were waves to the pilot as the ship crawled past signal stations with



First ship to pass through the canal—on November 17, 1869—was Empress Eugénie's yacht, *l'Aigle.*

such names as Ras El Ish, El Tina, El Cap and El Ferdan, where the old railway bridge sits wrecked and abandoned. One day, they say, it will be replaced by a tunnel. There was an occasional shout from a fisherman and a wave from one of the working dredges. But there were very few people, and the stillness was almost oppressive.

As the convoy moved slowly south at 14 kilometers an hour, barely causing ripples in the water, it was difficult to refrain from trying to visualize that day in 1869 when the first convoy, led by the Empress Eugénie of France on the imperial yacht *l'Aigle,* was taking exactly the same route. There were 51 ships that day, and they carried as passengers much of the royalty of Europe.

The Khedive of Egypt was entertaining 6,000 guests (all of them, obviously, didn't make the convoy) with festivities which nearly bankrupted his treasury. Five hundred cooks and several thousand servants had been imported from Europe. Boatloads of the finest wines had arrived from France. The fireworks for a gigantic display exploded before the ceremonies and almost destroyed the new little French-style town of Port Said. Dinners were served which included such dishes as *Poisson à la Réunion des Deux Mers* and a salad of *Crevettes de Suez au Cresson.*

At Ismailia, the oasis-like town on Lake Timsah midway in the canal which still serves as the Suez Canal Authority's headquarters, great balls were held in a hastily built new palace, long since gone. The armada of ships, mostly hidden from shore by the towering dunes, reached Suez at the southern end of the canal in about 48 hours of sailing time. The same trip now requires about 15 hours.

Lesseps, who wanted his canal to trace "for civilization a pacific and productive route across the sands of the desert," might well have approved the variety that made up our 22-ship convoy leaving Port Said on a hot summer day in 1975. In the lead was a Russian ship, followed by the *Calavittoria* with its cargo of 1,700 tons of French chicken and 100 tons of eggs for Saudi Arabia. There were two more Russian ships, two from Red China, three from Greece, three from Britain and a scattering flying the flags of other nations. Although the Canal Authority makes no effort to register the flags of the ships using the canal, it is apparent to anyone watching a number of convoys go through that the Russians and the Chinese, as had been rather expected, will be among the reopened canal's major users.

Grim sights along the banks

As the convoy moved along, the sights seemed to become grimmer. There were the rusted carcasses of sawn-apart ships, recently hoisted from the canal's waters. There was the war-smashed town of El Qantara, once one of the largest communities on the canal. On the left were the high sandbanks built up to protect Israel's supposedly invincible Bar Lev Line. On the right were the endless Egyptian fortifications, ready—just in case. Another old prophecy came to mind: In the 1850s Britain's Lord Palmerston, who, fearing French domination of Egypt, had furiously fought the canal's construction from the beginning, warned Parliament that the canal was an irresponsible "bubble scheme" which could only end up as "a fortified ditch."

Although President Sadat has proudly proclaimed that the canal zone has been returned to full civilian control, one does not have to be an experienced observer to see that this "control" extends barely beyond the canal's banks. Even Egyptians must have security checks to travel some of the nearby roads. And for foreigners the acquiring of the necessary passes can become a nightmare.

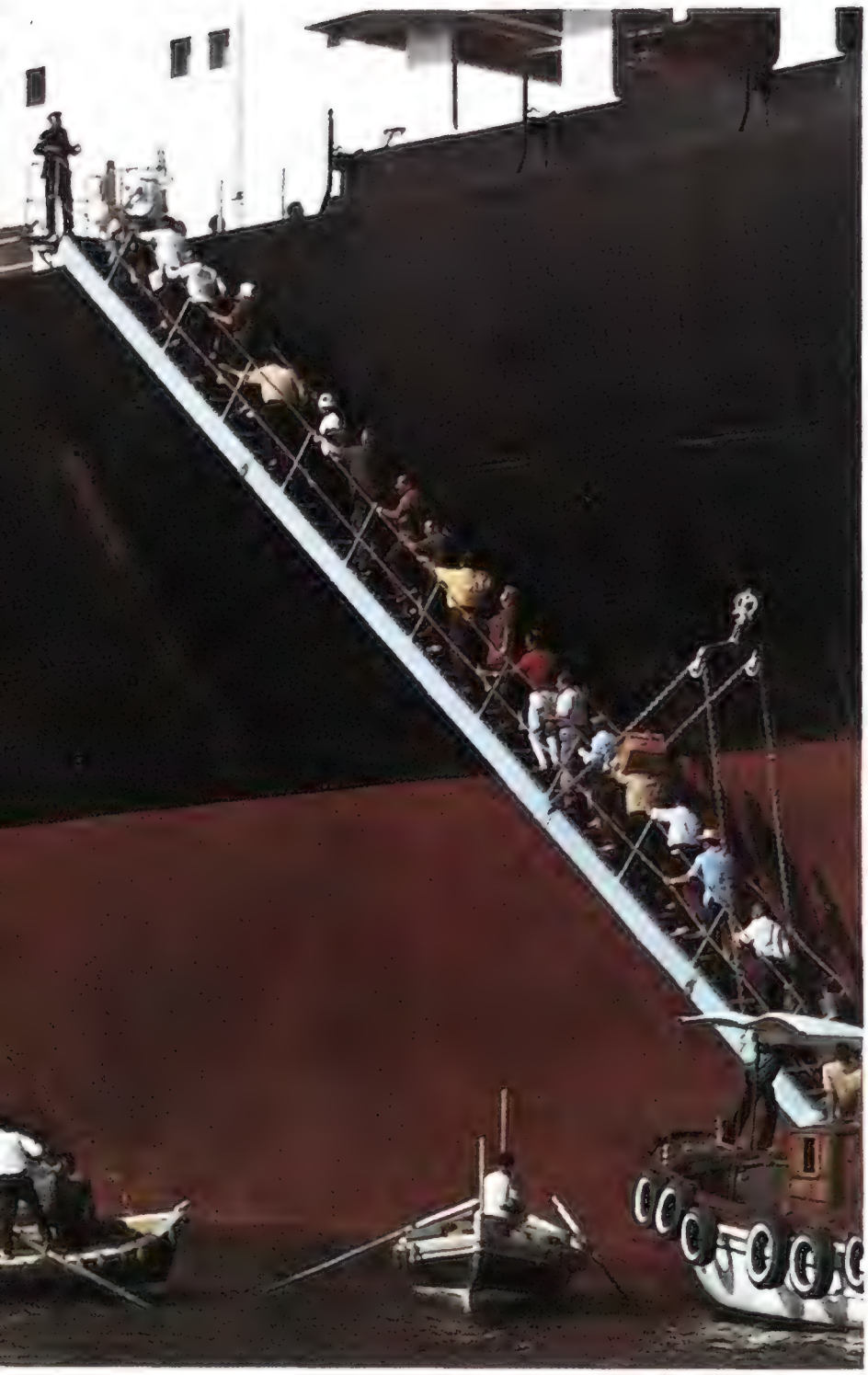
The canal, run from a handsome building in Ismailia, only slightly damaged in the 1973 war, seems to be operated with a fairly casual efficiency, surprising in a country notorious for an enormous and fumbling bureaucracy which has driven many a foreign business-

General desolation along both banks is relieved by palms and sparse vegetation at Toussoum.

Captain Aziz Khairy, the skipper, and Captain Hussein Hadidi on bridge of the pilot boat *Shahm*.

Canal Authority employees and their families relax at a recreation and sporting club in Ismailia.

Suez Canal in operation



Members of a work crew board tanker *Robina*, waiting in Port Said for the next day's southbound convoy.

man to the brink. Although it takes a work force of 13,000 to operate the canal, its shipyards, its dredging works and dozens of other operations, it is clearly the 270 or so pilots and trainees who are the glamourboys of the business, and they seem to know it. "Why not?" one asked. "We have the best jobs."

They became something like national folk heroes in 1956 when, after nationalization, the British, French, and most other nations, except for Greece, pulled their pilots out. Then a highly skeptical world sat back and waited—some almost eagerly—for the Egyptians to make a mess of it. "It wasn't very pleasant to be the butt of so many jokes," one veteran pilot said. "But we bloody well proved we could run it and well, even under conditions like today's when so many of the old installations are destroyed."

The pilots seem to belong to some sort of very exclusive club. They are gregarious, good-humored, highly respected and well paid by Egyptian standards (about $760 a month on the average, with many perks, including normally excellent housing for three percent of their salaries and retirement at 60 on two-thirds pay).

Like airline pilots, the men on the canal somehow seem to manage to sound alike and even, in many cases, to look a bit alike. They have a glow of good health which probably comes from lots of time off, and perhaps from the extensive recreational facilities provided for all Authority employees—11 sporting clubs in Ismailia alone. Having been accepted for training (they must hold a master's ticket and have had two full years on the high seas), they go through a two-month pilotage school in Port Said, followed by a total of 144 training runs on the canal's four legs. Once they get in, most of them stay in.

Ready or not, he "soloed"

"There are three kinds of pilots," one of the younger ones explained, with a big laugh, one day: "There are master pilots, distinguished pilots and extra-distinguished pilots."

"They were such snobs, the French and the British," explained Captain Hussein Hadidi, one of the '56 veterans. "They insisted you couldn't pilot this canal without two years' training. But after all, we weren't just picked up off the streets. We had to have master's tickets just like they did. I'd crossed the Atlantic 72 times before I got here."

Captain Hadidi (it means "iron man" in Arabic) is a big man with a hearty laugh, a French wife, a love of fishing in the Red Sea and a fluency in four languages. ("I speak a dash of a few more, but with the Chinese it has to be in English.") He joined the canal in 1956 just after nationalization, and his pilot's training consisted of exactly 13 days "of very hard work."

Then, ready or not, he was assigned to "solo." "I'll admit it," he says. "I was nervous that first day." Ominously, his first ship was British.

"The captain kept staring at me," Hadidi recalled. "He then wanted to know how long I had been piloting on the canal. I swallowed hard and told him, 'six years.' In that case, why hadn't he ever seen me before? I told him he had a fine big ship and the British and French had always had seniority over us. He kept staring, then finally said, 'Well, there's no reason for both of us up here; I'm going down below.' I must say I was very relieved.

"But then he came up later with a message and slammed it down in front of me," Hadidi continued. " 'I've read this,' he said. I was staggered. It was congratulations on my first solo trip through the canal. I was to be honored by President Nasser! Then there was another one of those long pauses. Eventually, still staring, he wanted to know what shipping line I'd been with. I told him and there was another deathly pause. Finally, he said: 'Well, as I said before, there's no reason for both of us up here. I'm going down below.' I like to remember that day, but I don't want to go through it again."

Americans are better liked

Captain Hadidi, in common with his colleagues, enjoys dealing with the constantly changing nationalities his work involves, with one exception: Like most Egyptians these days he doesn't care for the Russians. "With us," he explains, "It's partly religion. But most Egyptians don't like them, not just here on the canal, because they tend to treat us as subhumans. We Arabs are sociable. We like a good joke. We just can't understand people who keep themselves apart, who never seem to have a good laugh, unless maybe they do it in private. Egyptians really like the Americans because we can enjoy their company.

"More than that," he continued. "The Russians are so damned suspicious. Naturally, in our work we use certain code words just to make things simpler. Like BATTA. All that means is that the signal flag is hoisted and you can enter after 20 minutes. Can you believe that one Russian wouldn't give me the message? He was looking up BATTA in his dictionary!"

Captain Aly Fahmy, the pilot who took the *Calavittoria* from Port Said to Ismailia that summer's day, made it look so easy that he almost appeared superfluous. He wanted it understood that, in fact, "I'm just here as an adviser. I can't give the ship's captain orders." But the *Calavittoria*'s master, Angelo Guallini, was making not only his first trip through the canal in 14 years, but his first ever as ship's master. He was interested but, like most ship's masters, he soon

Port Said's new signal tower. The metal flags are shifted electronically from building at right.

left the pilot on his own and looked at the sights with his family, who were traveling with him.

Captain Fahmy kept his eyes glued to the canal most of the time, occasionally gesturing with his right or left hand and giving the briefest directions to the helmsman—on this trip, of course, in Italian.

"The first thing we do on coming aboard is check the steering gear," he explained. "If it's not functioning right, the ship doesn't go. Most of them are not difficult at all to handle, but there are a few which are notorious. We get to know which ones they are and we dread them."

He made his job sound fairly routine; the important thing is "to know the canal. You have to keep the ship exactly in the center of the channel, so the water pressure is the same on both sides—for the sake of both the canal and the ship." But, astonishingly to the novice, Fahmy said he doesn't pay much attention to the buoys. "After all these years I ought to know where the center of the canal is," he said, but quickly added, "Of course, you really can't afford to make any mistakes in this business."

In this age of gimmickry, one would surely expect that one of the world's great waterways would be run from something resembling, perhaps, a miniature Houston space center. Or have a bank or two of computers, at the very least. True, Suez doesn't have the complex locks problems of the Panama Canal, but the downright simplicity of the Suez operation doesn't, in 1975, somehow seem right. Even with telephones which permit contact with all the ships, and devices to operate the signal towers, which use mechanically switched metal flags to direct the ships to their berths, there is still a makeshift, temporary appearance to the operation. Wouldn't it be useful to have a computer—or something—to determine the positioning of the ships in the harbor and their placement in the convoys? "Why?" asked one of the assistant harbor masters at Port Taufiq. Why, indeed, when the system seems to work?

World shipping has passed the Suez Canal by since 1967, and the Egyptians not only know it but have grandiose plans to try to do something about it. In this age of supertankers, only about 27 percent of the world's tanker fleet can use the canal at all anymore, and tankers, right now, should be what the canal is all about. The first stage is already under way in a gigantic effort to make the canal more accommodating. It will, within three years, allow for a 53-foot draft and ships of 150,000 tons fully loaded (the present limits are 38 feet and 60,000 tons). The second phase—on the books, at least, for completion in six years—calls for a 67-foot draft and 260,000 tons.

The costs will be staggering. The two plans for deepening and widening the canal will require the dredging of about 225 million cubic meters of soil, sand and rock. Lesseps' original canal, it is guessed, required the removal of only 97 million cubic meters.

Forlorn reminder of past war, a vessel scuttled by the Egyptians in 1967 to block the canal now lies rusting on the bank. American crews cut apart ten ships before raising each one from the bottom.

Even with the equipment available today—and the Authority says most of the work will be "entrusted to specialized international companies"—there are skeptics who sincerely doubt that the money is around to pay for it.

But confidence overflows from the canal's Egyptian masters. A vast scheme, costing up to $10 billion, is already under way to rebuild the existing cities, add new ones and turn the area into a huge industrial and trading complex. Some of the new cities are already partly built with Arab oil money, and are being named, like King Faisal City outside Suez, for their benefactors. Sadly, some of them already look like potential slums.

The canal—with users paying doubled tolls and doubled insurance rates in some cases—has been getting back into business slowly, with a gradual build-up as the weeks have passed. But that, insists the enthusiastic Authority chairman, Mashour Ahmad Mashour, is "exactly what we expected. Everything is going according to plan. But bring on the ships. We're ready for them."

And there is certainly a dusty bustle in the cities of Port Said and Suez.

In Suez, the most heavily damaged in the last war, the St. James Bar is back in business, with a lively clientele including, among others, some of the U.N. troops escaping the tedium of the desert. The shoeshine boys are back and as persistent as ever. The vendors are again taking off in their bobbing boats to peddle cheap Nefertiti heads and pyramid paperweights to the transient sailors.

In Port Said, where the electricity frequently fails, the phone service is maddening and statistics are unreliable, it is said that there are already 300,000 residents, 20,000 more than before 1967. "But, of course, in eight years, families must grow," insisted one of the Authority's public relations men. Tour ships stop by now and then, and the old carriages, their brass lamps gleaming, are on hand to show the travelers the sights, such as they are. Giannola's restaurant, a landmark for 40 years, is jammed, and the talk is all business and in a babble of tongues. Above the restaurant, the owner of the Abu Simbel hotel has managed to get the rocket holes repaired in three of his floors, and was able to boast that he had checked in guests from seven nations in one night.

"But were you ever in Port Said before 1956?" an elegant lady in a chic Cairo gift shop asked. "Oh, it was different then, the parties, the fun. There were the British, the French, everyone. The people are different now."

When this was repeated to a Canal Authority official, he sniffed: "She'd better stay right in the shop in Cairo. I'm afraid there's not much place for her down here anymore."

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The traditional *saing*, photographed in Burma but as it will be seen in North America this fall: In the drum circle (center) is the conductor, U Sein Chit Tee, who will be in the touring company.

Text by Shelley Mydans *Photographs by Carl Mydans*

The ancient dance of Burma comes to dazzle American audiences

Going their own way in Southeast Asia, the Burmese have revitalized their classic arts and are sending a sample on tour

More than a thousand years ago, during the T'ang dynasty in China, a troupe of Burmese dancers and musicians visited the imperial court of Ch'ang-an, the then cultural capital of the world, and entertained the emperor, "singing songs containing Sanskrit words" and performing "spelling dances, lining up in a pattern." Watching them, the poet Po Chü-i wrote:

At one blow from the copper gong,
their painted limbs leap,
Pearl streams glitter as they twist,
as though stars are shaken from the sky . . .

It was a new, strange sort of dance and music, even for that sophisticated audience. And it will be equally new and full of wonder to North American audiences this fall, when a company of 14 dancers and musicians from the Burmese National Theater arrive here under the auspices of the Performing Arts Program of The Asia Society. (They will open at Carnegie Hall in New York on October 2, perform at the Smithsonian on October 18, and visit 17 other places before returning home; see schedule on page 79.) Although there are many echoes of other more familiar Asian cultures in Burmese dance and drama, these elements have been so thoroughly Burmanized that the final product can be called unique.

From the time they emerged from the mists of their prehistory—as a Sino-Tibetan people moving through the mountain passes of South China into the long, warm valleys of the Irrawaddy and Salween rivers to mix with the southern peoples of the coast—to the

Khin Than Htay as *nat* votaress who opens each program (and will do so here). The white train is still worn by Burmese brides, but only trained dancers can make it twist and swirl like this.

present era, the Burmese have always managed to go their own way.

This way, the "Burmese Way to Socialism" as it is called today by the ruling Revolutionary Council, is reflected in the strict independence and absolute neutrality of their national policy, and in the refusal to incur foreign debts, to accept more than a minimum of international aid or to admit more than a trickle of foreign visitors. And it is reflected also in their way of life, their culture and their arts.

Nowhere in the world is there an orchestra like the Burmese *saing* in which the melody is carried by the drums, nor dancers who manipulate white tubular trains sewn to the hems of their long tight skirts, snaking and billowing to the movement of their feet. Nowhere is there quite the same admixture of animistic *nat*-worship with the powerful, all-pervading Buddhism of the country, nor the inventive romanticizing and Burmanization of the Indian epics that underlie so much of Southeast Asian culture.

The Burmese orchestra is dominated by the picturesque *patt-waing*, or drum-circle (p. 70), in which the "drummer," sitting within a circular golden fence enclosing 21 tuned drums, carries the melody and is the conductor as well. He is the maestro, the *Ywaza*, "Lord of the Village."

In the *saing*, as it is constituted nowadays, the drum-circle is flanked by the gong-circle and another circle enclosing the big drum, both with carved and gilded railings like that of the *patt-waing*, except that they are only half as high. Ranged around these golden rings are the frames of hanging gongs, the cymbals, the bamboo clappers and the seven-note Burmese pipes. We saw this singular and beautiful ensemble one morning recently when we asked them to assemble for us to take pictures. We suggested eight o'clock on the stage of the Open Air Theater in Rangoon. And when we arrived—promptly, as we thought—we discovered yet another unexpected Burmese characteristic: They are habitually not only prompt but, on occasions they consider important, early.

How to describe the enchantment of modern Burma? Everything is falling down; there has been no repair, no upkeep, no rebuilding, it would seem, since the Burmese shook off British colonialism 27 years ago. Neither are there any jackhammers tearing up the crumbling streets nor pile drivers pounding the earth for the foundations of new buildings, no horns

Exercise begins with a sequence akin to the five positions of classical ballet. The heels are

placed exactly four knuckles and one thumb apart; for toes, add outspread fingers of other hand.

The girls are demonstrating one of the 101 steps in the basic exercise, which takes 18 minutes.

honking impatiently—indeed, there are few horns to honk. People walk.

Moss grows on the concrete steps of the Open Air Theater where we stand. (It is the monsoon season; it has been raining since mid-May and will continue to rain through September.) Along the muddy path behind us, through the overgrown compound, students are coming to practice. They walk in single file under their black umbrellas, cheerful and unhurried in their long dark tubular sarongs and crisp white shirts. Surely the Burmese national costume must be among the handsomest in the world, and it is almost universally worn. Very rarely do you see a man in trousers, even in Rangoon, or a woman in other than her more brightly colored sarong and soft blouse.

But the enchantment is more than the soft sounds, the clean air, the rainy sky pierced by the golden spires of pagodas. It is more even than the charm of the people, who are so gentle in approach, so gifted with quick understanding and bright wit. The enchantment in coming upon this sealed-off land is in finding a culture that has not been homogenized into the bulk-culture of the West, a country that respects and nurtures and jealously guards its individuality at whatever cost.

The orchestra was set up on the apron of the stage and we stood on the mossy steps and admired them. They had put on their formal box-cut jackets and traditional hats made of woven cane covered with fine pale yellow silk, with a little wing standing out over their right ears. Above the big-drum-circle floated a miraculous animal: a *pinsayu-pa* all made of gold and chips of colored glass and mirrors. It had the trunk and tusks of an elephant, the body of a dragon, the legs of a running buffalo, the wings of the mythical kailava bird and the tail of a fish.

Suddenly, with a terrible squawk, the oboe player cleared his instrument and we wondered what might next emerge. We looked to the *Ywaza,* but he was preoccupied with tuning his 21 drums, which he does by making a little circle of tuning paste in the center of each drumhead—a paste made of soft-boiled buffalo rice mixed with the ash of five different kinds of wood. (It is an ancient art.) The tiniest bit of paste added or scraped off alters the pitch, and it takes an ear tuned from babyhood to master the technique.

When all was ready, the *Ywaza* gave the nod, and the music that burst forth surprised us. Of course, it is far different from any Western music, but neither is it like the music of India, the primal font of so much of Burma's culture, nor the high-pitched instrumentalism of the Chinese to the north. It is not even like the music of other Southeast Asian cultures, in which the instruments tend to soothe and bewitch in long rippling melodies. Instead, it sings out lustily in boisterous rhythms, the full, round sounds made by the

The renowned photographer-author team of Carl and Shelley Mydans made an earlier trip to Burma to visit the city of Pagan (SMITHSONIAN, *October 1974*).

Ancient dance of Burma

Ywaza's fingers on his 21 drums and the lighter metallic burbling of the 18 struck gongs intertwining in complex melodic patterns. Meanwhile, the big drum comes on very strong below the counter-rhythmic snap of the bamboo clappers and the ting-ting-ting of the hand-cymbals.

We listened, fascinated that such music should come from those golden circles through the fine mist of the rain. The gusto of its rhythms and the occasional words shouted full-lunged by the cymbal players made us smile and now and then, with a crash and a bang and a strong shouted melody, made us put our hands to our ears. For it was loud, full of the sounds of primitive rites and of the *nat*-spirits who dwell in the deep teak forests and the village rice fields.

The orchestra was playing the overture to the dance of the *nat* votaress (p. 71) who traditionally opens Burmese village spirit-shows and dance-drama programs—as she will open the program of dances that is coming to the United States. She is an enchantress—and indeed the dancer whom we watched was enchanting in the modern as well as the traditional sense—and it is her function to call down the *nat*-spirits, offering gifts of rice, bananas and coconuts, until the lord of the *nats* condescends to accept them.

In these traditional shows, or *pwes,* the *nat* votaress may well dance for an hour before she gains the good will of the *nats*. For American audiences she will dance just 14 minutes, but it will be 14 minutes of a dance variation that has never been seen before in the United States. For though it remotely stems from the classic dance of India, it is essentially a reflection of the Burmese character.

In ancient Indian dance, as prescribed in the *Natya Shastra*, a doctrine of dance and drama written about 500 B.C., there are some 67 separate gestures of the hands, 36 glances, nine movements of the eyeballs,

The bow contest is a scene from the *Ramayana* to be presented on the North American tour. Here,

seven of the brows, and going on down to chin, neck, breast and so on, adding up to combinations of many hundreds, each symbolizing an emotion or an object. As Indian culture moved southeast to Indonesia during the centuries around the birth of Christ, these stylized movements and symbolic gestures gradually lost their meaning and took on the coloration of the peoples who adapted them. In Java and Thailand, for instance, the dancer's face is immobile and masklike; only in Bali do the eyes move with dramatic force. But in Burma, going its own way, a dancer's face may often portray emotions expressively and smile happily.

When the *nat* votaress appeared in costume on the rehearsal stage, I felt as though I might have been transported back a thousand years to China, for at a

Rama approaches the bow after the demon Dasagiri (right) has been able to lift but not to string it.

Rama does both and wins Sita (in pink). Behind dancers is the great Shwedagon pagoda in Rangoon.

blow from the drums and gongs she crouched and leaped and crouched again, the gleaming pink and red of her tight-fitting skirt turning with the angle of her hips, her elbows rising and lowering and her hands and fingers curved like grasses in the wind. Around her feet a white train swirled and billowed and the pearls at her throat did indeed gleam like "stars shaken from the sky."

The basic alphabet of Burmese dance taught to beginners consists of 108 positions or transitions, which have been reduced to 101 in modern times. And these have been divided into four successive sets, in order to make their memorization easier. The total exercise that runs through these basic steps, when executed properly, takes 18 minutes. It begins with a sequence that might be compared to the five positions of classic European ballet, the "first position," as it were, being the placing of the heels so that the fisted knuckles of the right hand plus the ball of the thumb will fit exactly between them (p. 72). The toes are turned out to an angle that will accommodate the right fist plus the outspread thumb and fingers of the other hand. The knees are bent and the space between them measured by the length of the forearm from elbow to closed fist. And now the hands are on the hips, the torso upright, knees bent, toes turned out, and the exercise begins.

We went one afternoon to watch a class of children at the Ministry of Culture's school for the dance and drama. The classes are held in long, low shedlike

In another *Ramayana* scene, Dasagiri tries to seduce Sita (Rama has been sent on a fool's errand into the forest), but she fends off his advances.

This dance recounts one of the main themes of Burmese drama: the lovers' journey of the prince returning from the university with his bride.

buildings where the dim light of a rainy day entered from windows on either side and the smell of wet weeds came wafting through.

The children, aged from 12 to 14, were going through the basic 101 set forms. They were in T-shirts and baggy trousers and their long black hair was tied back behind their ears. On their faces was a look of abstract concentration—and of entrancing charm. Their teacher roamed among them clapping time and a young man sat by a window beating softly on the gong.

"Puppet moves quickly"

I asked for the names of some of the steps as the children moved through them, for they are all written out, but in a language that is incomprehensible to me. At random, I was given the following names: "peacock tail hand behind," "puppet moves quickly," "seagull flies with spread wings," "flower wreath."

This little dance school has an enrollment limited to some 30 to 50 pupils, depending on the openings available to its graduates in the government-sponsored dance troupes. It was created in 1962 by the Division of Training and Research of the Ministry of Culture's Fine Arts Department, as part of the revitalization of Burmese traditional arts after more than 60 years of British domination.

Under the same governmental sponsorship (in which all pupils are paid a stipend during their years of study), there are also two schools of painting and the plastic arts. A second branch of the Ministry of Culture's Fine Arts Department is the Division of Theater, which sponsors *saing* orchestra ensembles and dance troupes in Rangoon and Mandalay. It is from one of the Rangoon troupes that the dancers who are coming to America were chosen.

Of course there are private dancing teachers in Burma also, and folk dancing continues among the varied ethnic peoples of the land. But the wonder is that a well-organized government-sponsored program to pick up the broken thread of an ancient royal culture should be undertaken, even on a small scale, by a country that emerged from World War II newly independent, battle-scarred and virtually leaderless. Furthermore, that this program could continue through years of rebellious uprisings among the Shans and Karens, Kachins, Mons and Arkenese of the minority groups, through a time when the central government walks a tightrope along a 1,200-mile border with the People's Republic of China and yet strenuously puts down its own Communists and other dissidents, and while the economy sinks ever deeper into trouble, is indicative of the pull of that strong cultural thread.

The brightest blooming of Burma's royal culture

lasted scarcely more than a hundred years. It began in 1767 when the Burmese conquered the Thai capital of Ayuthia, "making war like robbers," as a Thai chronicler reported, and ended in 1885 when the British overwhelmed King Thibaw's capital at Mandalay and sent him into exile. The "robbery" referred to at Ayuthia included not only the destruction of the city's beautiful monuments and seizure of its precious artifacts, but the carrying off of the flower of its court—including the royal dancers.

From these refined and exquisitely trained performers the Burmese learned the stylized postures and formal movements of Asia's classical dance-drama. Early Indian influences came with the Hinduism of Shiva-worship in which Indian dance itself developed, and of the cult of Vishnu and the semi-religious dramatic epics, the *Ramayana* and the *Mahabharata*. Later came Buddhism, which grew to be the strongest cultural influence in all Burma's history. In the famous Buddhist capital at Pagan (see SMITHSONIAN, October 1974, and Letters, pp. 16-17), which flourished from the 11th to the 13th centuries, it was customary to mark the beginnings and ends of such rites as pagoda festivals, royal almsgivings or audiences with songs and dances based on Buddhist themes.

After the fall of Pagan and the disintegration of its temples, these court performances gradually lost their religious content and came to be enjoyed purely as entertainment. When the Thais, with their high artistry, their glittering costumes, masks and pointed crowns, displayed their dance and drama in their captors' court, the cultural impact was instantaneous and deep. The Burmese were absolutely fascinated, and soon began to pick up the style and put on performances of their own. The stories from the *Ramayana* that formed the background for many Thai dance-dramas had long been familiar to them, and they began to interpolate some of their own ideas, delete and interject, adapting style as well as content, until the whole scene took on a Burmese flavor.

After annexation, a decline

The popularity of this classic dance reached its zenith in the mid-19th century, when magnificent performances were staged by royal troupes in the fairyland court of Mandalay with its carved and gilded teakwood palaces, its golden pagodas and its gardens of scriptural tablets written on marble. The era ended with the British annexation and the exile of the king.

After that, in the absence of royal patronage, the arts declined. In the first half of the 20th century, Burmese dance was barely kept alive by pupils of former royal court dancers supported by small dramatic clubs and by private dance-drama companies

Young student follows Daw Aung Than Kyi, once a leading dancer of a private company, who teaches and helps direct government-sponsored troupes.

The dance exercises for men are not as complex as 101 steps for women. Dancers are Myint Swe, left, who will make American tour, and Than Aung.

The candle dance, performed by dancers in a recital at Rangoon's Jubilee Hall, is popular

that traveled throughout the country. One of the senior instructors and choreographic experts of the government-sponsored dance troupe in Rangoon was formerly the première danseuse of the best known of these companies, and the high quality of her training shines through when she demonstrates a movement to one of the young dancers (p. 77).

Any excuse is sufficient to stage a *pwe,* from the dedication of a new pagoda to the winning of the jackpot prize in the state lottery, and until quite recently they were all-night entertainments. Nowadays they end at midnight "in the interests of public health and convenience," as the official pamphlets say.

Pwe means simply show, and there are several types of them: *yein pwes, anyein pwes, zat pwes, yokthe pwes* (which are marionette shows); in all of them there is music and some dance. The *yein pwe* is, indeed, pure dance with solos alternating with group numbers and *pas de deux* as in a Western dance recital. The *anyein pwe,* on the other hand, is a mixture of dancing, singing, snatches of plays, witty repartee and a lot of clowning.

The *zat pwe,* or dramatic show, is the dance-drama based on one of the Jataka stories about the previous lives of Buddha or on the Hindu epic of the *Ramayana.* The *Ramayana* (Story of Rama), along with that other great Hindu epic, the *Mahabharata* (Great War), permeates the literature, art and theater of vast stretches of Southern Asia where Indian culture has taken root—surviving even in those countries that are now Muslim. As heroic tales they have been compared to the *Iliad* and the *Odyssey,* and they have become as influential in Southeast Asia as the whole body of Greek mythology has been on Western art.

The *Ramayana* is as familiar as a fairy tale to children all over Southeast Asia. In the barest outline: The noble prince Rama is tricked out of his inheritance to his father's kingdom in northern India by an ambitious stepmother. Being a man of honor, he upholds his father's word and goes into exile in the forest for 12 years. His beautiful wife Sita and his loyal younger brother Lakhana insist on going with him.

Sita's beauty has caught the eye of the demon king Dasagiri of Sri Lanka, who sends an enchanted deer into the forest to lure Rama and his brother away from the hermitage where they live. Dasagiri then kidnaps the unguarded Sita and flies with her to his own kingdom, where he woos her ardently but she rejects him. Rama and Lakhana, meanwhile, in their search for her, enlist the help of the monkey king to rescue Sita, and after many strange adventures they succeed. The battle royal between Rama and the forces of evil under Dasagiri end in victory for the good. Sita proves her chastity by casting herself into the fire, which refuses to do her harm. And Rama returns to his kingdom to rule in peace as his noble father had before him.

Of all the many scenes and the many versions that elaborate the central theme of the *Ramayana* in various Southeast Asian nations, only in Burma are the soft and romantic episodes emphasized over the warlike sequences. And of the four scenes that have been selected to be performed in the United States, the first—as is so often true of the Burmese—is originally and uniquely their own.

today but it is far from the classic Burmese style and will not be included in tour program.

The background is that Sita's father, King Janaka, owner of a divine bow, has sent invitations to 100 kings to participate in a bow contest in which the one who can lift, string, and pull the bow will win the lady's hand. When the courier approaches a high-minded Brahman, who is meditating on a mountain top, he loftily tosses away the invitation with scarce a glance at the portrait of the beautiful princess that adorns it, whereupon the paper floats—a scattered broadside, as it were, of Sita's charms—down the mountainside to drop into the lap of the demon Dasagiri. We know already (being connoisseurs by now) that Dasagiri is of a violent temperament, given to low passions and a lack of moral balance. Although the invitation was not meant for him, who could doubt that he will appear at the bow contest?

Often the *zat pwe* scenes are accompanied by little moral homilies. And the object of this scene, it could be pointed out, is to demonstrate the strong contrast between the characters of the Brahman and the demon, and to serve as an introduction to the latter's infatuation. (To help the audience to perceive this contrast in character, the pure-minded Brahman is costumed in silvery white with a silver mask, while the demon is clothed in multicolored blues and reds and greens indicative of the roughness and cruelty in his nature, and his mask is fierce.)

The other *Ramayana* scenes to be presented to American audiences are the bow contest itself, the scene in which the enchanted deer captivates the unwary exiles, and the scene between Sita and Dasagiri in his castle garden when she wards him off with the impregnable veil of her chastity. And since these audiences will have to fill in from their own imaginations the special ambiance that is Burma (this still being a country that is seldom visited, though tourists may now spend up to seven days there), we photographed these dances against their Burmese settings: in the overgrown and scented gardens of Rangoon and on the edge of the Royal Lake, where across the silver water the 326-foot spire of the Shwedagon Pagoda gleamed in the distance like a small replica of the spikes on the dancer's crowns.

And we went to the broad terrace of the Shwedagon itself, symbol of Burma and one of the world's wonders. Ever since—2,500 years ago—Gautama Buddha himself gave eight hairs from his head to two Burmese brothers and they, on their return to their native village, enshrined them here, this soaring gold pagoda has been a center of Burmese Buddhist culture.

Again the rain was falling, and again a thin translucent light shone through the rain. It rained on us and on the gentle citizens who had come to offer flowers and burn incense at the many shrines. But the light caught, and flared into a golden glow on the spire towering above us and the many gilt pagodas that surrounded it, and on the painted masks and glittering costumes of the dancers.

Schedule of Appearances

Oct. 2, Carnegie Hall, New York City; Oct. 3, International Music Week, Montreal; Oct. 7, McMaster University, Hamilton, Ontario; Oct. 8, York University, Downsville, Ontario; Oct. 9, University of Toronto; Oct. 10, Morristown, New Jersey; Oct. 15, Wellesley College, Massachusetts; Oct. 17, University of Massachusetts, Amherst; Oct. 18, Smithsonian Institution, Washington, D.C.; Oct. 19-20, Massachusetts Institute of Technology, Cambridge; Oct. 24, Washington University, St. Louis; Oct. 26, University of Michigan, Ann Arbor; Oct. 27-30, University of Wisconsin, Madison; Oct. 31-Nov. 4, University of Pittsburgh; Nov. 5, University of California, Santa Cruz; Nov. 7, University of California, Santa Barbara; Nov. 9, UCLA, Los Angeles; Nov. 10, Orange Coast College, Costa Mesa, California; Nov. 11-17, University of Hawaii, Honolulu.

Sein Win, who will be seen on tour as Rama, on bank of the Royal Lake in Rangoon. Gold spire is the Shwedagon.

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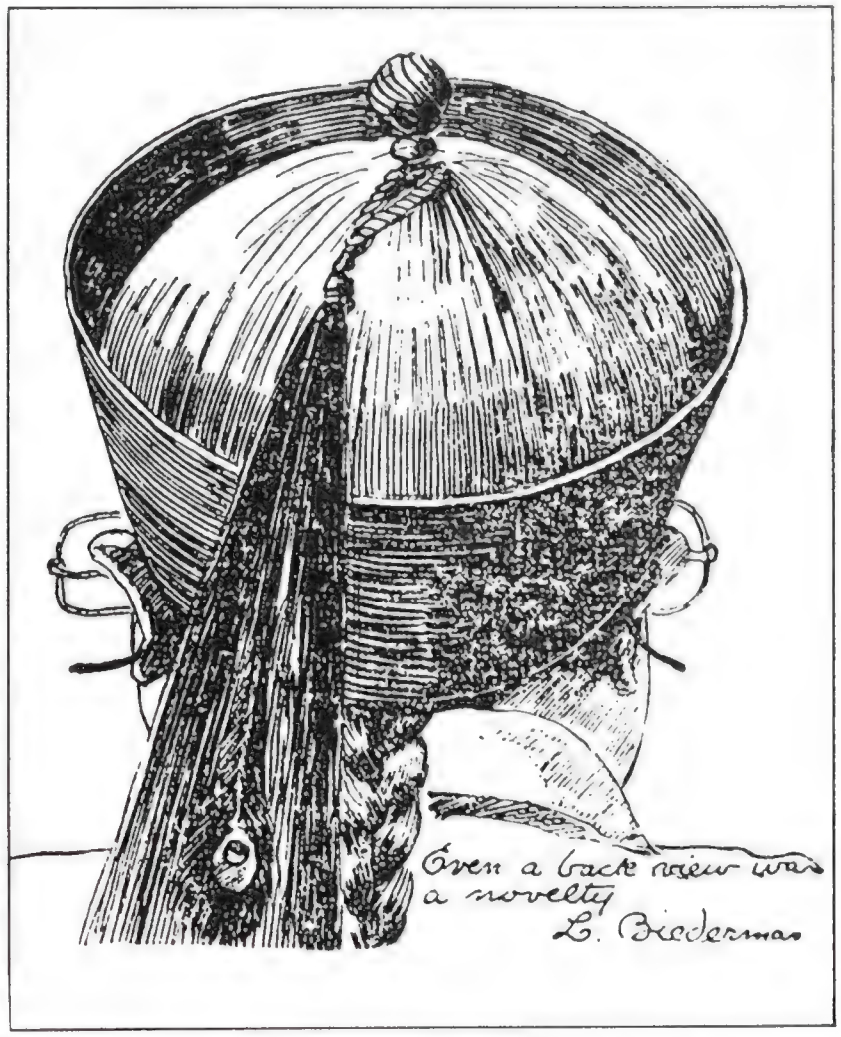


Biederman caught the long artificial queue which dropped from under Li's cap to his hips.

Baker of the *World* sketched Li's thick-lensed spectacles—and the ubiquitous city constabulary.

By Albin Dearing

Visiting Chinese big wheel inspired New York furore

Who was Li Hung-chang? Along Broadway no one seemed to know—or care. But his arrival sent rich and poor on an Oriental binge

He came to the United States on no official mission. He had so many titles the newspapers were uncertain how to identify him. Yet the arrival of Li Hung-chang, in August 1896, thrilled New York as no event had before and as few have since. The city found the visit of an important, impressive Oriental absolutely irresistible.

Li was the Chinese equivalent of Gilbert and Sullivan's Pooh-Bah—an earl—ambassador extraordinary, prime minister, foreign minister, viceroy, Commander of the Army of the North, Lord High Admiral of the Fleet and Senior Guardian of the Heir Apparent. Yet for all his titles, he was a less powerful world figure than President Gerald Ford of the United States, who plans to visit a different China this fall.

Li had been to St. Petersburg, Russia, for the coronation of Czar Nicholas II and was on his way home. More important to New Yorkers was the fact that he traveled with 18 aides and 22 servants, wore robes of rainbow-hued silk, brought 300 pieces of luggage, a golden sedan chair, several cages of songbirds, two noisy parrots, many beautifully plumaged chickens and a supply of 100-year-old eggs. Faced with such a personage, New York went all out.

On August 28, soon after daybreak, people were headed for lower Manhattan. By 11, packed humanity

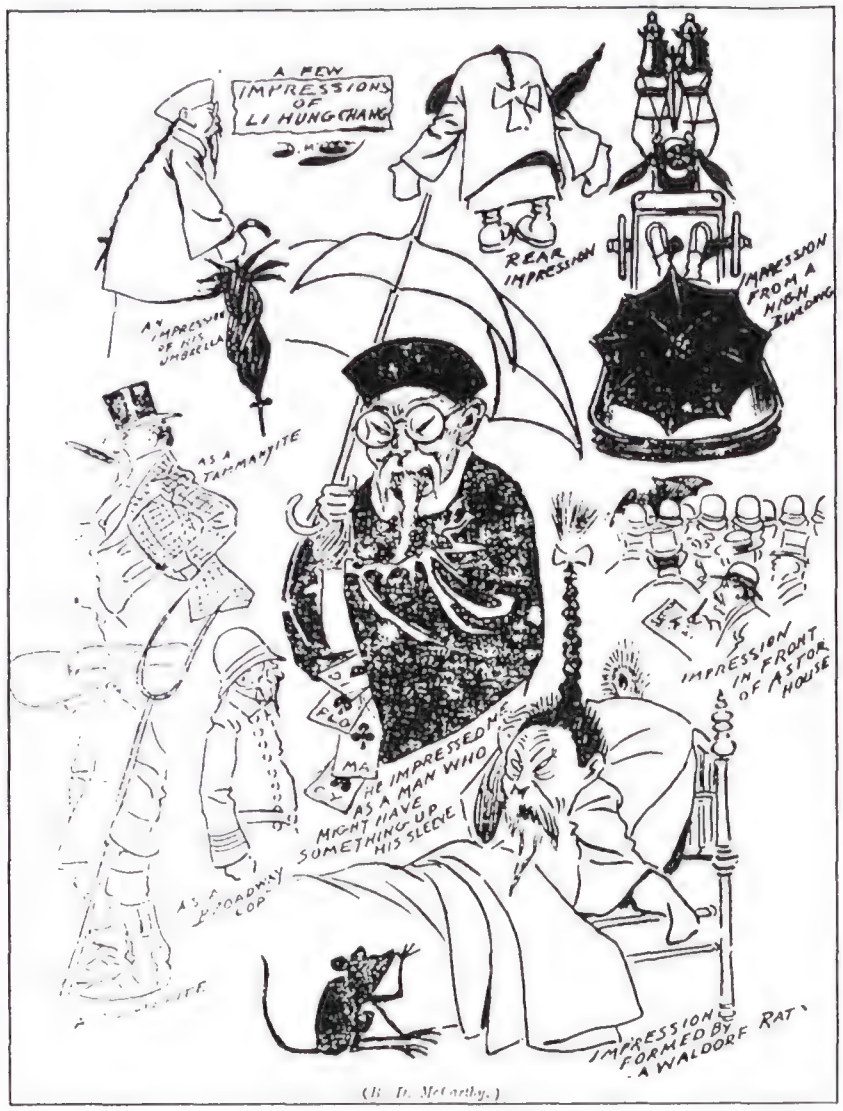
lined streets, thronged piers and rooftops, hung from windows, tree limbs and lampposts and overloaded every available boat. Besides the North Atlantic Squadron of ten gleaming-white battleships, two cruisers, a monitor and a ram, the Sixth U.S. Cavalry Regiment—America's finest horsemen and their mounted band—had been ordered up from Fort Myer, Virginia, to serve as Li's escort. President Grover Cleveland left his fishing tackle on the banks of Buzzards Bay and hurried down to New York to insure the warmth of America's welcome.

Fire Islanders first sighted Li's ship. Guests of the Surf Hotel had spent days in special preparations. Since dawn William Temple had been up in the Marine Observatory scanning the horizon through his glass. In the distance he saw a whiff of smoke. Moments later it took the shape of a steamer coming fast. Temple shouted, and crowds rushed to the hotel's windows. In the yard Captain Charles Weeks and his life-saving corpsmen had a small howitzer, primed to fire the first American salute to Li Hung-chang. *Boom!* went the cannon, and from the Observatory a great American flag unfurled. Solemnly the ship dipped her colors in answer to the salute.

In Chinatown, balconies and windows blazed with color, and chains of lanterns united the thoroughfares. Four "portals" draped with American and Chinese banners formed a background for thousands of minor ornaments. Despite special permission to shoot firecrackers in Chinatown until September 5, most had been saved for the great day of Li's arrival.

New York's reporters went down the bay aboard *Dolphin,* which carried General Thomas H. Ruger, military commander of the Department of the East, and his party to welcome Li for President Cleveland.

Albin Dearing wrote about bad old days of the 1870s in SMITHSONIAN, *September 1972.*


A FEW IMPRESSIONS OF LI HUNG CHANG
REAR IMPRESSION
IMPRESSION FROM A HIGH BUILDING
AS A TAMMANYITE
IMPRESSION IN FRONT OF ASTOR HOUSE
HE IMPRESSED ME AS A MAN WHO MIGHT HAVE SOMETHING UP HIS SLEEVE
IMPRESSION FORMED BY A WALDORF RAT

The *World's* McCarthy pictured Li as a man with cards up his sleeve (spelling "diplomacy").

The official party and the press mounted a ship's gangway and were ushered forward to the Ladies' Saloon. Li was already on hand, borne in his chair by four seamen. He had seated himself on a divan under a skylight, a 74-year-old six-footer with a white goatee and a braided queue that fell to his hips. The American Line vice-president, James A. Wright, did the introductions. Li stood to greet General Ruger and invited him to sit on his left. The Chinese minister sat on the viceroy's right. Directly in front of Li stood interpreter Lo Fing-luh, a skilled linguist in German and French as well as English. Between Li and Lo there seemed to be complete and total communication, often without so much as a word being uttered. Lo intently watched his master's lips move when he spoke and made sure that he understood precisely what was said. Observers soon noted that Lo roared with laughter anytime Li said anything having the barest flavor of wit.

With General Ruger were two aides: a State Department representative, Assistant Secretary W. W. Rockhill, fluent in Chinese, and General James Wilson, who had known Li in China. Li seemed amused by the reporters and photographers. With sly little winks he

Li, a tall, broad-shouldered man, attracted unceasing attention of the press with his clothing.

conveyed to them the impression that he understood English and used an interpreter only to give him more time to ponder vexing questions. With General Ruger he displayed an astonishing lack of tact, pointing out that generals seemed to be everywhere and producing roars of laughter among the Chinese.

When the time came for Li to get in his chair and be borne down the gangplank, Colonel Frederick Grant rushed up and introduced himself. Li was delighted to see the son of his old friend, President Grant. He asked after Mrs. Grant and wanted to insure that he would have the chance to visit Grant's tomb. Li was one of the early subscribers to the fund for building it.

Several thousand people lined Fulton Street pier. Directly in front of the American Line pier the police had cleared a square. As people poured in from the side streets it looked as though they would overflow the barriers. Time and again the police charged the crowds with sudden and assumed fierceness. Many people had brought lunches; others sent messengers for sandwiches. The arrival of the Sixth Cavalry and the maneuvers of the naval militia kept everyone entertained, even those who had already been patiently waiting for five long hours.

In front of the lower gangplank, a space of a hundred feet or more was guarded with a stout, cloth-bound railing. Within this enclosure was the Chinese consul and his wife, members of the Celestial diplomatic family and Chinese merchants. The merchants did not hobnob with the consul and his party; everything was governed by caste. The hats they wore, and the buttons on top of them, represented the 19 grades in the Chinese social scale. Those who wore a white button on the crown were of the fifth grade, highest represented in the merchants' associations. Lesser grades wore blue, purple and gold buttons. He who wore no button at all was obviously of the lowest rank. Li wore a jeweled button of red agate or jade, indicating the highest rank.

Leading from the gangplank was a strip of red carpet, resplendent against the battered planking. Along this the Chinese gentlemen were lined up in a picturesque pattern. But the march-past of the Naval Reserve put them out of plumb, and Consul Sze ran down the ranks tapping one man on the nose with his fan, gently kicking another in the shins, unceremoniously treading on the toes of another, to remind them they were out of alignment.

Li rated "Hail to the Chief"

As the ship finally approached, the crowd jammed up against the railing and hung from beams up and down the length of the pier, while in the street outside the police were almost bowled over. As the gangplank was swung aboard, the Naval Reserve presented arms and their band played "Hail to the Chief." The cavalry swayed into a sinuous line. At their bugler's "Attention!" the horses plunged and the crowd scampered from under the hooves.

"There he is!" screamed a boy and everyone craned forward. At the top of the gangplank stood China's great man, smiling benevolently. From right to left Li looked, and seemed pleased. The tradesmen of Mott Street whom the consul had trained so well bent double in salutation. The crowd stared and cheered. First out of the pier was a carriage-load of secretaries from the consulate. The crowd mistook them for Li and started to cheer.

Li's carriage then appeared, the coachman fingering his lines nervously. The viceroy still smiled and carried an umbrella as he entered New York.

"Never had one individual been more highly honored by the people of this metropolis," observed the *Herald*. "It was a unique display for New York," noted the *World*, "where the Chinese have always stood for less than nothing; a despised race. . . ."

What did His Excellency eat? At 5 A.M. a rice gruel; at 6 A.M. hard-boiled eggs in vinegar, curry and rice,

President Grover Cleveland interrupted his Buzzards Bay fishing vacation to welcome Li officially.

The reception took place in the Fifth Avenue home of William C. Whitney, former Secretary of the Navy.

and a rice custard; at 11:30 A.M. braised fish and sauce, braised pork and onions with sauce, pork livers chopped fine, fried potatoes and gravy, curry and rice; at 3:30 P.M. broiled fish and onion sauce, braised turkey chopped in pieces, pork with brown sauce, potatoes and gravy, curry and rice. Li's own cooks prepared his meals. A choice selection of sauces and vegetables was carried in cans and the ship's commissary provided chicken, turkey, pork and pork livers.

As Li's procession left the pier, reporters scampered about interviewing other passengers about the great man. Had Li been a good sailor? Yes, or at least he had appeared regularly on deck. The crossing had been uncommonly smooth. Did his fellow passengers speak informally with him? Well, yes, if they spoke at all. Most of the time they were answering Li's questions. Whose company did the Grand Old Man of China seem mostly to enjoy? The children's! He would spend hours talking with them. Especially Bessie Gattle, age 11, who had recited for him. What had she recited? "The Pride of Battery B." Li had given her a medal with his picture on it. He had also enjoyed meeting the Abbott Sisters, a music hall act, returning to Broadway after a successful London run. These two beauties had given an informal performance in his staterooms and Li had presented them with an autographed picture of himself. He had also talked ships with shipbuilder Theodore W. Cramp of Philadelphia and politics with Virginia Senator John W. Daniel.

At the Waldorf everything was ready. For several weeks, since that familiar telegram from the State Department saying simply "Mr. Nye will arrive from Washington in the morning," the hotel had known it would have another important state guest. That it should turn out to be the viceroy from China and not another South American dictator or European prince made little difference to anyone except the housekeeper. Finding Chinese flags and decorations might present a problem.

"We'll go down to Chinatown," said George Boldt, the Waldorf's proprietor, to Oscar, his maître d'hôtel. "We will copy everything they have . . . banners and things like that. We'll make them five times as large and ornate."

They headed for Mott Street and bought pennons and lanterns. Oscar spied a great triangular banner with scalloped sides. It was bright yellow with the fiercest of dragons, one that breathed fire. "That would be the imperial flag of China," explained an attentive shopkeeper.

They bought several of each and hurried back to the Waldorf where seamstresses went to work. Soon the

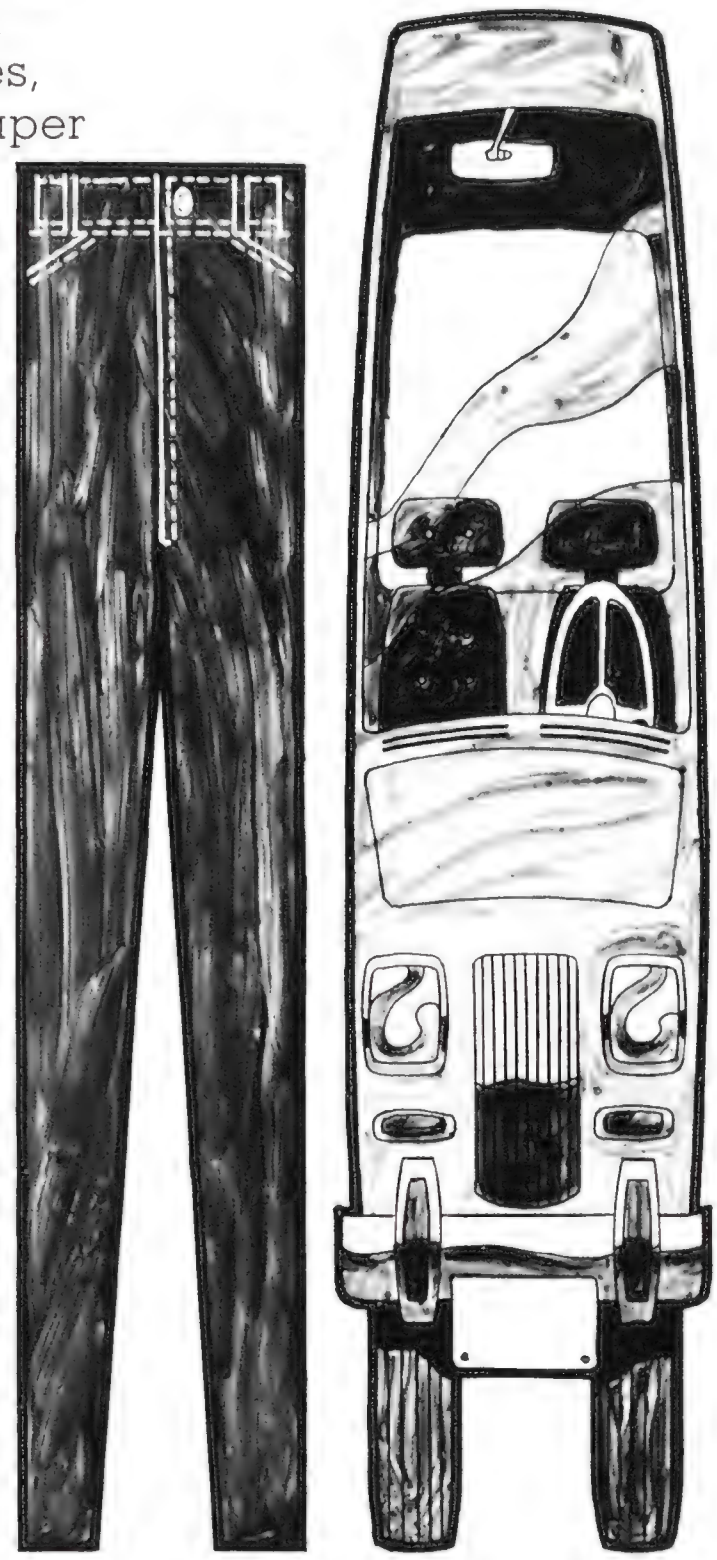
Jets and Jeans

Despite inflation and soaring fuel costs, an airline ticket remains a 1975 bargain.

From 1948 to 1975—
- the price of round steak went up 120%
- a pair of men's shoes went up 127%
- a pair of blue jeans went up 226%
- the cost of a car rose 261%.*

Yet the price of a roundtrip airline ticket from New York to San Francisco during those 27 years rose just **18%**—and you get there twice as fast. During that time the average airline fare went up **22%**, while the overall Consumer Price Index rose **123%**. In many cases, with today's special fares, travel by air is cheaper and, of course, faster than by car, bus or rail.

The U.S. scheduled airline system, with its speed, cost, convenience and reliability, adds up to your best deal in travel. That's why the airlines today are the dominant form of public passenger transportation between our cities, and between this country and the rest of the world.



Source: Consumer Price Index & manufacturers. Air fares as of August 15, 1975

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hotel looked like a Chinese inn with flags and bunting of every color of the rainbow displayed at every vantage point. The largest flag hung from the Fifth Avenue flagstaff.

Boldt knew that Li Hung-chang traveled with his own chefs, bakers, valets, guards, footmen, secretaries, interpreters and physician. He even had three men to help him smoke: one to carry the pipe, one the tobacco or cigarettes, one the fire. His cooks brought his food and bowed, waiting for his appraisal of each dish—not because he feared poison, but because he was accustomed to living that way. He also carried his own wines, tea and supplies of mineral water.

For the diplomatic banquet Saturday night Oscar of the Waldorf planned a splendid menu. Several waiters, those serving nearest Li, would be Secret Service men. Oscar would conduct Li to the grand ballroom (converted for dining) down a secret passageway which led to a curtained door behind the head table. Only Oscar had the key.

George Boldt inspected the second floor reserved for royal guests. Li Hung-chang would have the State Suite, a great 15th-century bedchamber. Everyone admired its superbly carved bedstead, its canopy of figured mahogany, and the room's fine Gobelin tapestries. When the Duke of Veragua had occupied this suite, he, being very religious, had desired a small chapel. So Boldt supplied a tiny prayer alcove with an altar, closed off with draperies from the rest of the surroundings. Veragua's prayer nook would be an ideal place to store Li's valued coffin, which he usually took with him. Fearful of dying outside the Middle Kingdom, he wanted to make sure that his remains would be shipped there immediately to be buried with his ancestors. However, as a delicate compliment to the United States, he had shipped the coffin home from England while he was there.

George Boldt looked at his great gold watch and hurried downstairs. One elevator was reserved exclusively for Li and his party. Guards would insure that no one came on this floor. Crossing the lobby, Boldt quickly appraised a platoon of bellboys. He noted several new faces behind the desks: more Secret Service men. Masses of luggage were being brought in through the freight entrance: cages with birds, tea caddies, bundles bound with hemp, European strapped portmanteaus, even bundles tied with bandannas as though just fetched up from steerage. He paused to admire the robed Celestials sorting them out. Li had five servants concerned only with luggage; one, a very old retainer, sat atop a trunk, giving instructions.

As the *Times* man said, the Waldorf had become the Inn of the Golden Dragon.

Boldt looked again at his watch, snapped shut its cover and returned to the lobby. The Hungarian orchestra was tuning up. State Department officials had arrived. The crowd outside was restive. Would Inspector Monahan's men be able to restrain them? Guests filled every chair in the lobby—guests and plainclothesmen. They had already ejected one curiously dressed individual who wanted to sell fans. Japanese fans!

Boldt hurried to Oscar's post on the red carpet, just outside the 33rd Street entrance. He could hear cheers billowing up Fifth Avenue. Police bicycle corpsmen passed; mounted police were nudging people back up to the curbs. The cheers grew louder. Now the bright flash of trumpets, the boom of drums. Boldt darted out under the canopy. The column wheeled in from Fifth Avenue, the plumed cavalrymen dressing their gleaming sabers. Then came the carriage. Overhead the great blue dragon stirred and swayed contentedly in New York's bright afternoon sun.

Thus arrived the great Oriental, feted by the authorities, cartooned by the press (opposite) and stared at by the populace. Though China was even then bent on modernization, Li remained in most American eyes the stereotype Confucian—glamorously exotic, but never to be taken seriously.

Yet Li Hung-chang ranks as an extraordinarily influential and gifted statesman who worked closely with the empress dowager of China. He died, disillusioned, soon after the turn of the century. About a decade later the Manchu dynasty fell, opening the way for Dr. Sun Yat-sen and the revolutionary fervor that produced, eventually, the Peoples' Republic of today.

The *World's* Outcault put Li in his comic strip—America's first—"The Yellow Kid." Here the Kid, whose conversation always appeared on his yellow smock, leads the Chinese through the delights of Hogan's Alley.

THEY ARE GIVING HIM SOME GENUINE CHINESE MUSIC
BE SURE TO GET THE "Rediculous" DRESS STAY
IT MAKES YOUR WAIST 1 FOOT SMALLER - AND YOU ARE A SIGHT. WHAT YOU WANT IS TO BE UNCOMFORTABL
李鴻章
LADIES ASK FOR THE
IF YOUR DEALER SAYS SOMETHING ELSE IS JUST AS GOOD TELL HIM HE IS A BIG LIAR
QUIET CORNER CLUB PICNIC
FER LI-HUNG-CHANG IN RYAN'S VACANT LOT NEXT THURSDAY
GENTS 50 CENTS
LADIES 25
REAL LADIES FREE
THE HOGAN'S ALLEY GUARDS
THE NEW SONG
DID YOU EVER GET THE MONEY THAT YOU LOANED? OR WHERE ARE ALL YOUR FRIENDS?
A PARK ROW BALLAD.
BEGEE!
NOTHING IS SO MUCH FUN AS LOTS OF NOISE.
HURRAH! FOR LIE-HANG CHUNK
HOGAN'S ALLEY QUARTETTE SONGSTER
Hogan's Alley Quartette
THE BELLE OF HOGAN'S ALLEY
ME & LI HAS MADE A BIG HIT WIT EACH OTER. SAY! HE TINKS I'M A CHINAMAN - DONT SAY A WOID. I'M GOIN TER GIVE A YELLOW TEA FER HIM - I KNOW MY Q
I AM LEADING AN UPRIGHT LIFE WE ARE ALL AT OUR BEST TO DAY
QUITYERKIDDIN
DO NOT BE DECEIVED NONE GENUINE WITHOUT THIS SIGNATURE
R.F. Outcault

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Since enameling on concave copper is so very beautiful, you may wonder why it hasn't been done in the past. The reason?—it calls for the rare combination of the ultimate in technical knowledge together with the unique skill. Until now, no studio had the artists, craftsmen and facilities.

But now, after 10 years of intensive research, Loup/Bétourné of Limoges, France, recognized as the world's finest and largest Classic Enamelers, has perfected and patented the process that permits the creation of masterworks such as "Clair de Lune".

Here are some of the reasons why the Loup/Bétourné Studios are the only enamelers with the capabilities to offer a Classic Enamel Painting on a concave copper plaque:

- A revolutionary new enamel that would not crack or change its shape when fired was the key. Jean Bétourné invented such an enamel.
- To eliminate deformities in the enameling plaques during firing, a custom setting was devised for the Loup/Bétourné enameling oven (the world's largest).
- 40 enamelers (including 4 Master Enamelers) work for over half a year to produce an Edition of only 100.
- An average of two weeks of intensive work is required for each plaque.
- 50 separate firings are required with temperatures ranging between 1112 and 1822 degrees (depending on the color and chemical mixture utilized) are necessary for each plate.
- Countless hours are spent preparing, hand-shaping and finally framing each plaque. And if the slightest slip or error is made, the painting is a total loss!

Jean-Paul Loup has expressed the hope that you purchase "Clair de Lune" not only as an investment, but also because of its exceptional beauty and workmanship. However, the artists and craftsmen at the Loup/Bétourné Studio may very well be the last generation of Classic Enamelers willing to undergo the difficulties involved in achieving a masterpiece like "Clair de Lune". Most important, the prime factor to consider is that each of these Classic Enamels is done free hand—no stencils are used. No two are exactly alike . . . each "Clair de Lune" is an original work of art!

Finished, framed size of each painting is a magnificent 21¼″ x 18¾″ (plaque size of 13¼″ x 10½″). "Clair de Lune" is matted on rich dark brown velvet and encased in an opulent 22 carat gold leafed frame (even the back of the frame is finished in the same velvet). A superbly-engraved "title" plaque is affixed to each frame. Each is numbered and signed by Bétourné and accompanied by a "Certificate of Authenticity" signed by Jean-Paul Loup and Jean Bétourné.

The price of "CLAIR DE LUNE" is $750.00. You will never again be able to purchase this remarkably beautiful limited work of art at this low price.

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Three great ladies helped establish the United States

Taken from an upcoming book, The Patriots, *these biographies by leading historians celebrate the role of women 200 years ago*

By Samuel Eliot Morison

Abigail Adams

Wife of the second President of the United States and mother of the sixth, Abigail Adams was the most able and articulate of a remarkable group of New England women who were married to prominent leaders of the independence movement in Massachusetts.

Abigail, born November 11, 1744, was the daughter of the Reverend William Smith, Congregational minister of Weymouth, Massachusetts, and Elizabeth Quincy, daughter of Colonel John Quincy of nearby Braintree. "I never was sent to any school," she wrote in later life; but her Grandmother Quincy took her in charge, and she read widely. On October 25, 1764, she married a rising young lawyer of Braintree named John Adams. She bore him five children: Abigail, John Quincy, Susanna (who died shortly after her first birthday), Charles and Thomas.

During her husband's absence for sessions of the Continental Congress at Philadelphia, Abigail played to perfection the role of patriotic housewife and mother. Her letters give a vivid picture of a country household's privations during the siege of Boston. John loved her dearly and so appreciated her wisdom that he called her his "Portia." When the Declaration of Independence was coming up, she wrote to him playfully, "In the new code of laws which I suppose it will be necessary for you to make, I desire you would remember the ladies and be more generous and favorable to them than your ancestors. . . . That your sex are notoriously tyrannical is a truth so thoroughly established as to admit of no dispute."

During the war, John was absent more often than not—first at Congress and then as one of the ministers to France. Abigail carried on through the difficulties of war, blockade, inflation and severe New England winters. She joined him in Paris after the peace, in 1784. Then followed three years in London, where John was joint minister and plenipotentiary with Thomas Jefferson, and from there she wrote fascinating letters to her nieces describing the court, the theater and the social life.

Abigail Adams kept her statesman husband, John, informed of conditions in wartime Boston. She was the first First Lady tenant in the White House.

First to use White House

Her husband's Vice Presidency and Presidency (1789-1801) meant, for Abigail, hired houses in New York and Philadelphia and, after 1800, the White House in Washington. The plaster was still wet when they moved in, and Abigail had to use the East Room to dry her laundry with a roaring wood fire. She met the situation with her usual energy and cheerfulness, but was secretly happy that Jefferson's election deprived John of a second term.

The 17 remaining years of her life she spent at Quincy in company with her husband, in the comfortable mansion he had purchased out of savings. For that he was indebted to the prudent Abigail.

"No man ever prospered in the world without the consent and co-operation of his wife," wrote Abigail truly to her sister in 1809; and she added that, far from being overburdened with cares, she would rather have had too many than too few: "Life stagnates without action." The Adamses celebrated their golden wedding in 1814. John lived to see their son John Quincy become sixth President of the United States, but a sudden attack of typhus fever caused Abigail's death on October 28, 1818. Although secure of a place in history as the beloved and helpful wife of John, Abigail also deserves a niche of her own in American literature for the interest and vivacity of her letters.

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By John J. Waters

Mercy Otis Warren

Mercy Otis Warren, the patriot, feminist and author, believed that the "faithful historian delineates characters truly, let the censure fall where it will." Her insightful letters, her satirical sketches and her boldness in attacking John Adams, the former Federalist and President, show that she practiced what she preached. Mercy (born on Cape Cod in 1728) was the first daughter of James Otis sr., a traditional provincial politician. She learned the basic literary skills from her uncle, Jonathan Russell, minister of the Barnstable church, who through his books opened up to her vistas of the larger world. However, once Mercy could read and write, she was forced into ladylike needlework while she enviously watched her brother James perfect his Latin and Greek. All of this she intensely resented, and wrote that if females dealt with trifles and men with power, the "deficiency lies not so much in [the] inferiour contexture of female intellects as in the different education bestowed on the sexes."

Marriages in the Otis family, as well as all career decisions, reflected the "patriarchship"—Mercy's own word for her father as an institution—who used his children as pieces in the chess game of power. Thus in 1754 Mercy married James Warren, scion of a distinguished Plymouth family, son of an ally of her father, and college friend of her favorite brother James. With her husband she shared a formally correct marriage and mothered five children. James Warren, less gifted and ambitious than his wife, realized her strength and said in an intended compliment that she had a "woman's temperament but a man's mind." In bringing up her own children, she rejected the "irksome methods of severity" that had marked her own childhood and favored greater liberty. Mercy chafed under the "narrow bounds" of the required female role even while she rationalized that women should accept the "appointed subordination" of the marriage state, not because they are really subordinate but rather "for the sake of order in families."

Mercy Otis Warren saw in the patriot struggle against Great Britain reflections of her own fight for an identity. She was first helped in this by her brother James Otis jr., who made her his confidante and assured her that "no man ever loved a sister better." Mercy, in turn, acted as his mediator before the "God of Heaven" and told him that he remained the "continual subject of both my sleeping and waking thoughts." Yet she realized that she needed a larger audience than her family.

When she took pen in hand, she faced the world and the future. Mercy knew that this was a bold and assertive act for a female, but then she held that the American Revolution revealed the hand of Providence and the unfolding in time of the spirit of "universal liberty." In her play *The Group* (1775) she cast her brother as Brutus and all her patriots are "resolved to die or see their country free." Mercy Otis Warren caught the temper of radical Boston with its protests against corrupt tax officials, police searches and British officeholders, and its resentment of the Hutchinson-Oliver "monopoly" of political jobs. Nor did the death of her brother in 1783 or family difficulties still her opinion that her generation partook in the "foundation of that glorious revolution which will be considered among the most interesting events in the annals of time."

In 1805 Mercy Warren, having championed the French Revolution and favored the Jeffersonian Republicans in Federalist Boston, published her unique three-volume *History of the Rise, Progress and Termination of the American Revolution.* Ever the democrat, she presented the thesis that revolutions are the "sudden rotations in human affairs . . . permitted by Providence, to remind mankind of their natural equality, to check the pride of wealth, to restrain the insolence of rank and family distinctions, which too frequently oppress the various classes in society." Until her death in 1814 she engaged in polemics, giving as she took. She knew that she was not loved, but by her writings ensured that she would be remembered.

Admiral Morison needs no introduction to readers; his chapter on Magellan appeared in SMITHSONIAN, *February 1974. Professor Waters won a Jamestown Foundation Award for an article on the Otis family. James Thomas Flexner is Washington's biographer. These excerpts are from* The Patriots, *to be published in October by Atheneum, commissioned by the U.S. Bicentennial Society and edited by Virginius Dabney.*

Mercy Otis Warren chafed under the patriarchal tone of her Boston upbringing. In her letters (many to Abigail Adams) and her play, *The Group,* she allowed her spirit of rebellion to boil over.

By James Thomas Flexner

Martha Washington

When President Washington was embattled with the Jeffersonians, Albert Gallatin, who was to be Jefferson's Secretary of the Treasury, described Mrs. Washington as "a very good natured and amiable woman. Not so," Gallatin contended, "her husband." The most amazing thing about Martha Washington was that during her long life, at home and in the conspicuous stations she occupied, she charmed everyone she met and never made an enemy.

Born Martha Dandridge to a simple Virginia family, she was carried by her ability to soothe into wealth and position. Daniel Parke Custis had been unable to get married because his cantankerous father had repudiated every possible bride. But Martha charmed the tyrant, becoming at 18 the wife of the 37-year-old Daniel. When, eight years later, he left her a widow, she was, due to his estate, one of the richest marriageable women in Virginia.

The plump, diminutive lady—she was hardly five feet tall—became the bride of Virginia's tremendous—Washington was more than six feet—French and Indian War hero. The match was for him in part a marriage of convenience. He was trying to disentangle himself from a married woman he loved, and Martha's wealth raised him into the first rank of Virginia planters. There was trouble between the couple at first, but Martha's human gifts triumphed. Washington soon stated that marriage was the most important event in life, the most conducive to misery or happiness.

One of George Washington's greatest contributions to the Revolutionary victory was the steadfastness that helped him to keep, despite all discouragements, an army ever in the field. For eight years he never took one day of furlough. Perhaps even as strong a man as he could not have borne the strain had not Martha supported him and the cause by "marching" (as he put it) every year to whatever headquarters her husband occupied during the winter's pause in the fighting. She felt compelled to leave behind, however reluctantly, the gentleness of Mount Vernon, because "the poor general was so unhappy that it distressed me exceedingly." With her doing fine needlework beside him in his winter quarters, he could, as the snow fell outside, almost forget the war. Bringing with her always "domestic felicity," Martha Washington made—as she was again to do when her husband was President—a profound contribution to the creation of the United States.

However, she had no desire to interfere in great affairs or flash as a great belle. And her husband had enough of excitement away from her side. She brought him always the comfort of the hearth. She was the only human being whom he allowed to penetrate to the soft inner core of his nature, where dwelt that diffidence and extreme sensitivity which manifested itself in his excruciating vulnerability to criticism.

The Washington marriage was childless, but Martha had children and grandchildren from her previous marriage. For them she was overprotective, shielding them even from her powerful husband. For the rest, her life was wrapped up in his. Resentful always of the interference of the outside world, determined to keep something to herself at last, she burned, after her husband's death, all their letters to each other.

Martha Washington, wealthy and serene, gave comfort to her husband during the dark days.

"My tastes are very simple. I only want the very best of everything."

An eminent British prime minister was quoted as having made that statement.

Well, we guess just about everybody would like to have the very best of everything.

But for most of us, that just isn't possible. We can't afford a Rolls-Royce (with chauffeur), servants, summer and winter homes, etc.

But it is interesting to note that even those who can afford all those things still cannot buy or serve a better whisky than Maker's Mark.

And, as for the rest of us, no matter what our means, we can at least enjoy the very best of some things. One of those things is love, another is companionship. And speaking more materially, another is whisky.

Moderation is key.

If you drink in moderation, then the extra cost of Maker's Mark is amortized over quite a period. We'd be the first to admit that immoderate drinkers probably can't afford Maker's Mark. But then they really can't afford any whisky, can they?

Maker's Mark was intended to be enjoyed in moderation. It is not, and never will be, mass produced. It is made, little at a time, slowly, thoughtfully, and is meant to be consumed in the same manner.

Not for everyman.

So, Maker's Mark will never compete for the mass market.

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Maker's Mark Distillery, Loretto, Ky., Ninety Proof–Fully Matured.

It was never Bill Samuels' desire to do so. Bill, founder of Maker's Mark Distillery, is a fourth-generation Kentucky distiller who knew exactly what he wanted when he started making his own whisky back in 1953.

All he hoped for was to find the pride of self-achievement in making a whisky of singular character for those few who understood whisky well enough to enjoy a truly outstanding distillation.

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Though it's not for everyman, it could very well be for you.

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When you're in our neck of the woods, we cordially invite you to visit our little distillery on Star Hill Farm near Loretto. Meanwhile, if you have an interest in the history of whisky-making in the Bluegrass state, write for a free copy of our little booklet, "The Wonderful World of Kentucky Whisky."

"The President is fortunate to
is bursting, leaving others to

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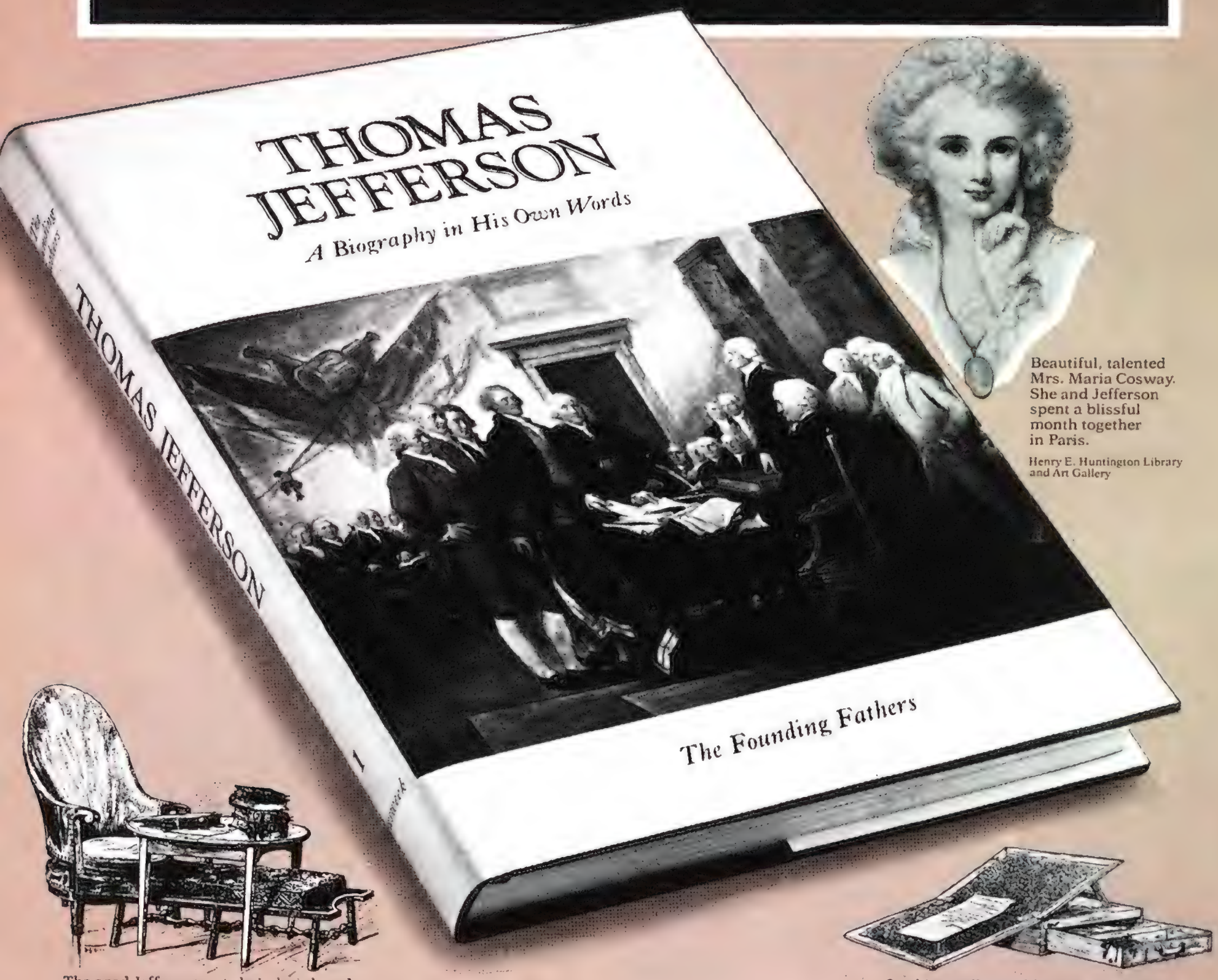


Beautiful, talented Mrs. Maria Cosway. She and Jefferson spent a blissful month together in Paris.

Henry E. Huntington Library and Art Gallery

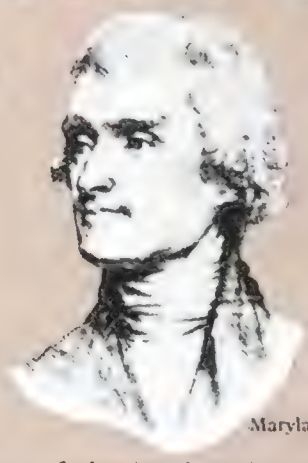
The aged Jefferson put chair, bench and table together for more comfortable letter writing.

Library of Congress

On this small portable writing desk he himself designed, Jefferson wrote the Declaration of Independence.

Culver Pictures

get off just as the bubble hold the bag."



Maryland Historical Society

—THOMAS JEFFERSON,
in a letter to James Madison,
on George Washington's retirement.
(From THOMAS JEFFERSON:
A Biography in His Own Words)

Most of us know at least three things about Thomas Jefferson. That he was our third President. Wrote the Declaration of Independence. And bought the Louisiana Territory.

But probably few of us know the dramatic *true* story of one of the most gifted, controversial, and engaging men who ever lived!

Now, THOMAS JEFFERSON: *A Biography in His Own Words* offers you a provocative and absorbing view of the man and the new nation he fought to create and govern. This unique eyewitness report comes from Jefferson's own confidential notes and memoranda. Secret journals. And private letters to his most intimate friends and confidants.

Every page brings you fresh revelations. About the public Jefferson—and the private one. His complex relationships with Washington, Adams, Franklin, Hamilton, Madison. The bonds of respect and admiration that held them together. The deep distrust and political rivalry that tore them apart.

- Jefferson's ringing sentences have become part of our history, our tradition, our language. But he couldn't find words to propose to the girl he loved! *(Turn to page 27 for his poignant letter about the "strange confusion" that overwhelmed him.)*
- In Paris, a recent widower, he had an idyllic affair with the beautiful young wife of an English painter. *(On page 172, you'll find the touching love letter he wrote her when they parted.)*
- Jefferson's enemies called him a coward for refusing to fight a second war with England. But he unhesitatingly ordered the U.S. Navy to blockade the Barbary Coast rather than pay a penny of tribute to pirates. *(His letter to James Monroe, on page 55, reveals his plan for taming the North African pirate kings.)*
- A college dropout at 19, he founded the University of Virginia in his later years. Working almost single-handedly, he raised money, hired professors, even designed buildings. *(You'll be struck by the brilliance of his architectural ideas.)*
- In spite of his own intellectual achievements, he figured the odds were 14 to 1 that his daughter would marry a blockhead! He forced her to study hard—because she might have to educate her whole family. *(On page 142, you'll find the rigorous study program he laid out for her. It covers every hour of the day from 8 a.m. to bedtime!)*
- The author of the Declaration of Independence also wrote an advertisement—offering a reward for a runaway slave! *(You can see the ad on page 79.)*
- A near-genius, his mind ranged from subtle affairs of state to ingenious gadgetry. Among his inventions: a swivel chair, dumbwaiter, adjustable desk, portable copying machine, central-heating system, and a new kind of plow. *(Many of his original designs are reproduced in these books.)*
- With a stroke of his pen, he doubled the territory of the United States for less than 3¢ an acre—the most spectacular real estate deal in American history! Yet, he managed his own affairs so poorly he died virtually bankrupt. *(His moving letter expresses his concern for the future of his family.)*

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By Joyce Johnson

The grim corridors of Alcatraz as a tourist attraction

The toughest criminals of the gangster era dreaded being sentenced to The Rock, where silence ruled and riptides patrolled

From the time I was a child, Alcatraz was always less of a real place than it was an idea—the very name was interchangeable with the word "evil." Even as an adult, newly arrived in San Francisco, I found it took time before the word Alcatraz and the sight of a somber-looking island out in the bay would fuse together in my mind.

Today, notorious Alcatraz Island prison is open to the public. In 1973, ten years after it was shut down, the National Park Service reopened "The Rock" and began guided tours. It has become San Francisco's biggest tourist attraction, with nearly 100 people an hour flocking to this grim island which for years repelled intruders with its jagged cliffs, gun towers and posted warnings—"Keep Off! . . . Persons Entering Closer Without Authorization Do So At Their Own Risk."

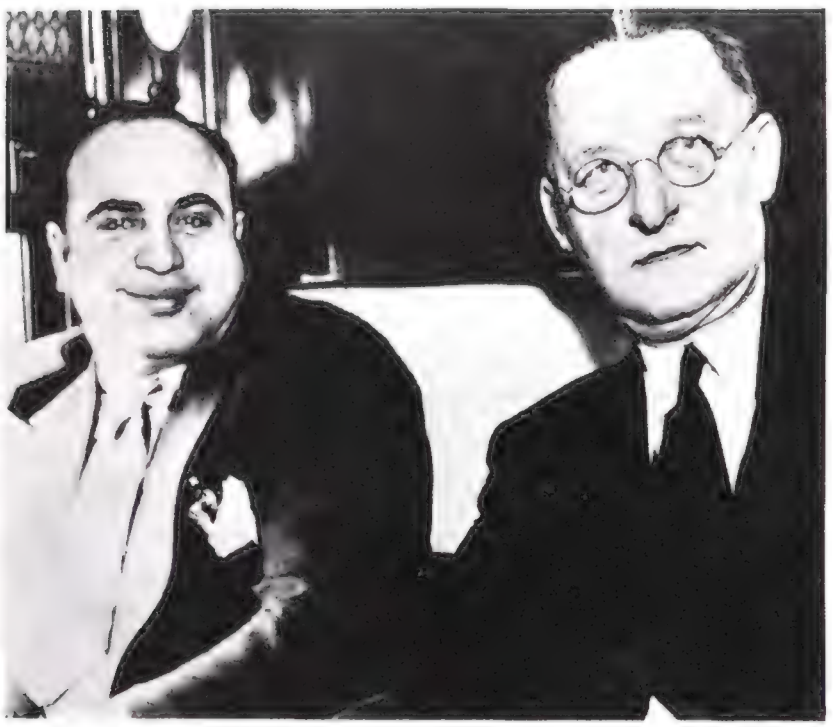
Visible (sometimes) from the sea through the Golden Gate, Alcatraz Island was the site of the first American lighthouse and military fort on the West Coast. The island's full name is *La Isla de los Alcatraces,* or Island of the Pelicans. But the Spanish and Mexicans probably never set foot on it, and the Indians believed it to be a habitat for evil spirits. It was simply a small island of rock completely devoid of soil and vegetation.

For more than a century, The Rock functioned as a prison. Its earliest known prisoners were military, quartered at the Fort in 1859 and confined in a wooden shack. It had a few Civil War prisoners and, in the 1870s, it held "uncooperative" Indian chiefs from the Arizona and Alaska Territories. It was under military jurisidiction from 1848, when it was ceded to the United States with California, until 1933.

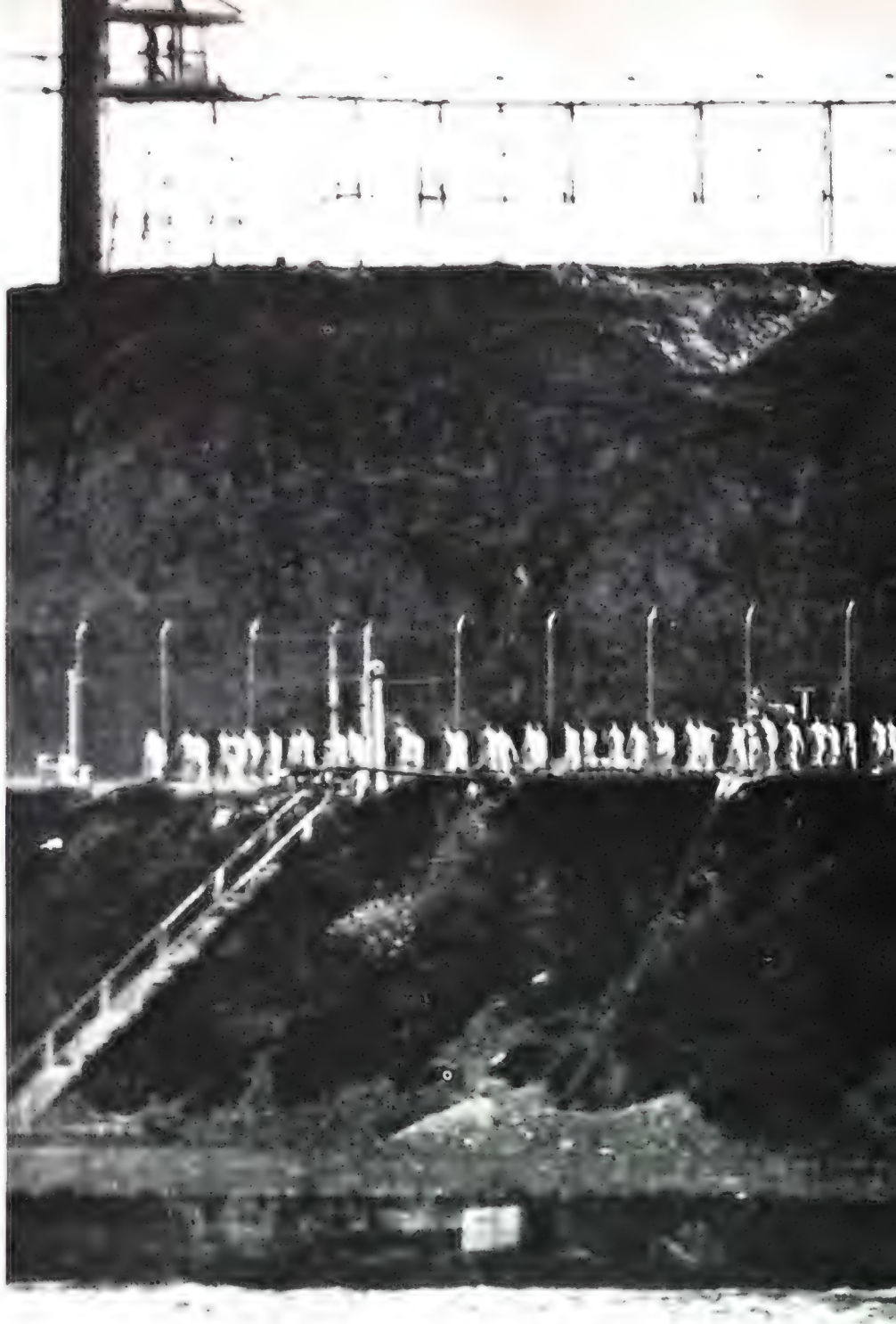
In 1934 Alcatraz became a federal penitentiary. This was the gangster era. Law enforcement agencies seemed helpless before Baby Face Nelson, Dillinger and Machine Gun Kelly until the chain of bank robberies, kidnappings and murders was broken with the help of the G-men. Not surprisingly, even behind bars gangsters remained a problem. So, at a time when the French were abandoning Devil's Island, our Justice Department chose Alcatraz Island as the site for a super maximum-security penal institution.

As J. Campbell Bruce has pointed out in *Escape from Alcatraz,* his exhaustive study of the penal years on The Rock, it was Warden James A. Johnston, a banker, lawyer and civic leader, who gave Alcatraz its

Inmate's "living room" is restored by Park Service. View from San Francisco recalls Groucho Marx's song, *Lydia, the Tattooed Lady:* "And on a clear day you can see Alcatraz."



Al Capone smirks on his way to Atlanta with a marshal. At Alcatraz he babbled and sang.



reputation for toughness. Johnston replaced soft iron bars with tool-proof steel, covered sewers with bars and put locking steel doors on utility corridors that ran between the paired banks of each cell block. Gun galleries were at each end. Gun towers and yard-wall gun boxes were erected and linked with catwalks. Tear gas outlets were installed in the mess hall ("gas chamber" to inmates), and a gun walk was set up along one side. Installed in the roads to the shops were gates with electric locks, activated by tower guards. The entire prison community was sealed off with a fence topped with barbed wire.

Guards were hand-picked from other prisons and transferred to Alcatraz at the ratio of one to every three prisoners. But the most important security precaution was already built-in—the water, swirling past the island in fierce riptides.

On the day Alcatraz officially opened, news reporters were denied information as to when the first inmates would arrive or who they might be, and were forbidden to set foot on the island. That midnight, a train with barred windows pulled into the federal penitentiary in Atlanta. In darkness, 53 prisoners were roused from their beds, stripped, searched and put into beltless trousers and backless slippers to impede any escape attempt. They were shackled with leg irons, waist chains and handcuffs, then led aboard the train one at a time. At Tiburon, a mainland town across from Alcatraz, the two coaches were switched onto a railroad barge and slowly towed to the island.

Joyce Johnson is a curatorial assistant at the Oakland Museum and a spare-time photographer.

"Fifty-three crates furniture from Atlanta received in good condition, installed, no breakage," wired Johnston in confirmation.

Alcatraz had a capacity of 336 prisoners, but the average was 250. Of the 1,557 who served time there, only one was sentenced to The Rock directly. Officials cultivated the idea that Alcatraz was reserved for the country's most hardened criminals and most clever escape artists. Yet not every man who served time at Alcatraz deserved maximum security. A military prisoner who had gone AWOL landed on The Rock. And, when the prison closed permanently in 1963, a number of inmates were transferred to medium-security prisons. It has been suggested that the inmates who did not fully belong on Alcatraz were kept there as a counteracting force.

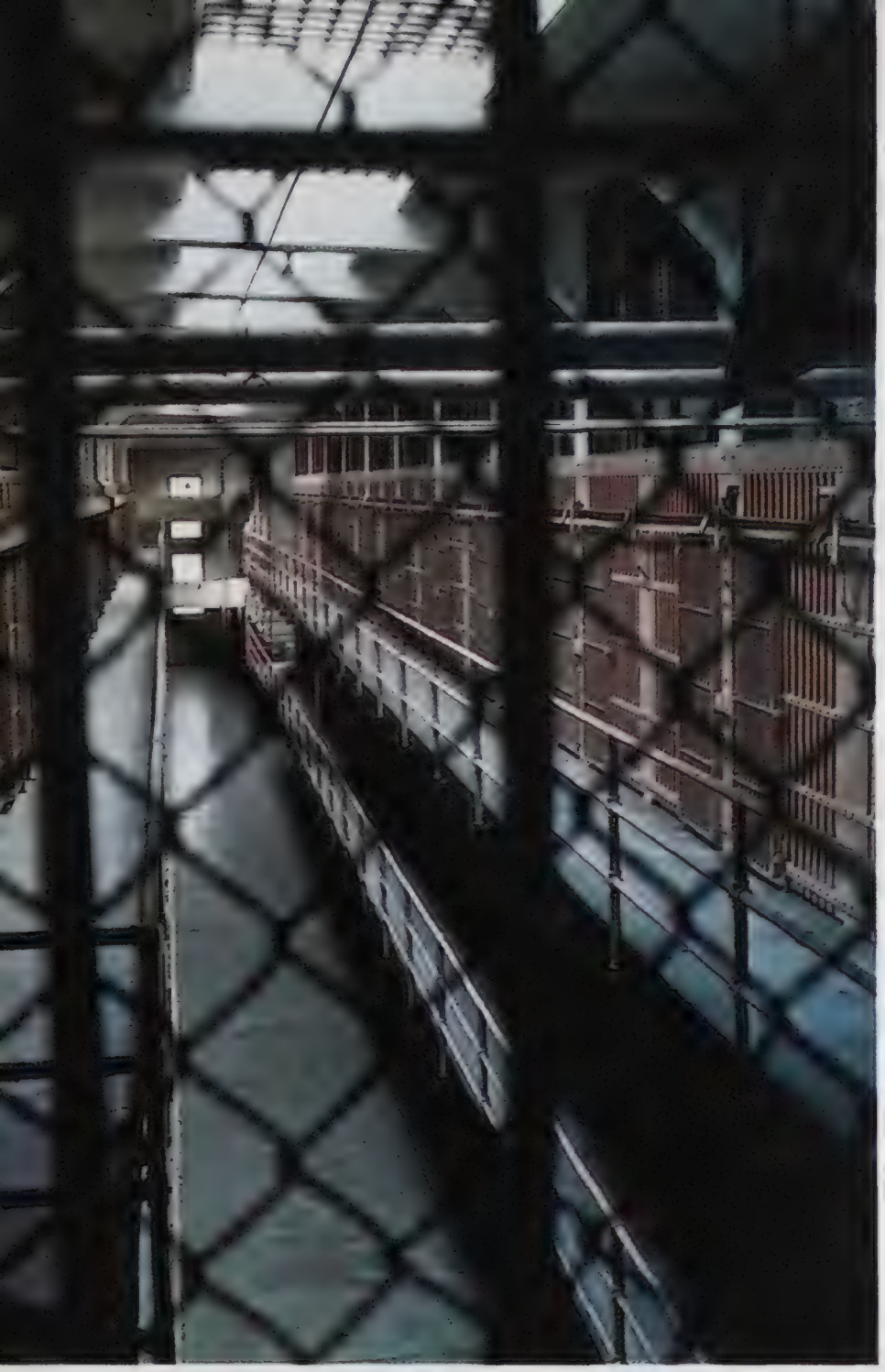
When I visited the old prison, it wasn't until the

A line of inmates marches in the 1930s toward work area. Alcatraz was never fully occupied.

guide led us into the cell house itself that I began to develop a full sense of what Alcatraz once was. Just as it is difficult to sit for very long in an empty theater without imagining the whispers, the coughs and the shuffling of feet, it is impossible to stand inside this three-tiered collection of empty human cages and not imagine a man inside each, staring out from behind the bars.

The Park Service guide explained that the first six years that Alcatraz operated as a federal penitentiary are known as the Silent Years, so named because the inmates were not allowed to talk to each other, or even to sing or whistle. Stepping over to a remote-control lever at the end of a cell block, she opened a dozen or so cells at once and stood to one side while we examined them. I entered a windowless, five-by-nine-foot concrete and steel crypt that Johnston once called the prisoner's "living room." What sounds *could* have been heard during the Silent Years? The low hum of power generators and the sizzle of the steam heating? Roy Gardner (last of the famous mail-train robbers) remembered the sound of two foghorns that split the silence every 20 seconds and every 30 seconds at opposite ends of the island, and the sound of evening target practice for the guards. "The Rock has spawned its own particular breed of ventriloquists," Gardner wrote in his book, *Hellcatraz*. "Some of the cleverest will make a crack at a guard right while he is looking at them, with him barking, 'Who said that?' "

When convicted murderer Ted Cole arrived at the Rock to do 50 years, he bragged, "Don't think I'll like it here. Doubt I'll stay long." In 1937, Ted Cole and his partner, Ralph Roe, were the first of a select few to beat The Rock.



Tiers of barred doors line a cellblock.
Gun galleries at each end guarded the room.

The day of their escape a heavy fog clung to the island. In anticipation of such a day, Cole and Roe had already made cuts through two shop window bars which they had concealed with artificial smears (probably rendered by rubbing soap on the cut, then blackening it with a lit match). When the guard left the shop after the one o'clock crew count, Cole and Roe ran for the window, bent the bars and broke two panes of glass without being heard. Taking along a wrench, they moved through the heavy fog undetected by the tower guards and smashed open a lock in the fence. They groped their way to the edge of a cliff, jumped 20 feet into a pile of casings, then jumped into the bay.

When the guard returned to the shop for the half-hour count, Cole and Roe were gone. For the first time since Alcatraz was made into a federal penitentiary the siren was kicked on. Off-duty guards sprang into action, on-duty guards drove prisoners into their cells and the skipper of the prison launch began circling the island. The normally cloistered, self-reliant prison was forced to call upon the Coast Guard for help. Roadblocks were set up on San Francisco streets and police combed the waterfront. Alcatraz officers searched waterline caves on the island and patrol boats searched all small craft on the bay and scanned the water for clues or bodies. San Francisco grew restless as people listened to the radio and read banner headlines: "Alcatraz Felons at Large."

The full-force search failed to uncover any evidence. The day of the escape, tides were swirling past the island and out the Golden Gate at about eight miles an hour, and it was said that under such conditions even a strong swimmer could not have reached the San Francisco shoreline before being swept out to sea. It is generally agreed that the two men drowned, though neither body was ever found.

The most notorious convict ever to serve time on The Rock was Al Capone. A compulsive talker, he was transferred to Alcatraz during the Silent Years. At Atlanta, Capone had smoked Corona Coronas, conferred with his cronies during visiting hours, ordered gourmet dishes and played a radio. At Alcatraz, Capone was tossed into solitary as soon as he arrived for gabbing to another inmate in the mess hall. When he got out, ten days later, he began talking again and again got ten days in solitary. This pattern kept up until he landed 19 days in solitary for trying to bribe a guard to keep him up on current events.

Every inmate wanted assignment to a job, no matter how menial; otherwise, a man might spend up to 23 hours a day in his cell. Working a job reduced cell confinement to about 16 hours a day. Capone was assigned to dry cleaning and laundry, ironically the industry that gave him his start in the Chicago rackets. In those days the prison did laundry for nearby military posts and the warden learned soldiers were writing home bragging that Al Capone was cleaning their dirty clothes. Since the Alcatraz program aimed at keeping the prisoners' egos in check, Capone was reassigned to mopping the shower room and latrine.

Capone played a banjo in prison combo

Capone was detested by the other inmates for his money (estimated at $20 million), for serving only a mild rap of ten years on income tax evasion, for the fact that his men were responsible for "taking care of" various friends of some inmates. Fearing for his life, Capone would remain inside during the two-hour Sunday afternoon recreation period and retreat to an abandoned basement shower room where he played banjo in a four-man band of inmates—one of them Machine Gun Kelly, who played the drums. Though gifts were forbidden for prisoners, musical instru-

ments were permitted. Capone's wife, Mae, bought the banjo for him, a $1,500 bejeweled model. Another time his request for a new pair of glasses was granted. Mae bought him a pair with gold rims.

The no-talking rule, the hostility of other inmates and the actual attempts on his life began wearing Capone down. There were times when guards would try to coax him out of his cell and he would back into a corner and stare. There were days he played like a child, chattering to himself and making up his bed over and over. Sometimes he'd stand at the front of his cell and sing *O Sole Mio.* Five years after arriving on The Rock, Capone left, practically a babbling idiot. Eight years later he died on his estate in Florida of a stroke, heart attack and pneumonia, at age 48.

Corridors between cell blocks at Alcatraz were called Broadway (the busiest), Fifth and Michigan Avenue. Capone probably spent most of his time on the second tier of Michigan Avenue in a cell considered more desirable than others because it was sometimes sunlit. On the opposite side of the cell house was the cell of Robert Stroud, the "Birdman of Alcatraz." The epithet is misleading because it was at the federal penitentiary in Leavenworth, Kansas, that Stroud had turned his cell into a virtual aviary, breeding canaries and caring for diseased birds. He had to leave it all behind when he went to Alcatraz, and he died there, in the solitary confinement block, aged 73.

Ventilator, used in Morris' escape plot, leads to roof where the San Francisco skyline beckons.

Battle of Alcatraz

Despite the high risk factor, the temptation to try an escape was too great for some men. They either drowned, were shot, or were recaptured and had one long term piled on another. In May 1946, six convicts who obtained prison keys and arms never even made it beyond the cell house. The guard whom the six prisoners seized somehow managed to slip the key to the yard door off his set before the convicts took the set. As the six tried key after key on the door—their only means of escape—frustration turned into violence.

From Thursday afternoon until the following Saturday morning, armed convicts held unarmed guards captive inside the cell house. The island was in chaos. Guards from other federal prisons were flown into San Francisco and taken out to Alcatraz. A division of combat-ready Marines landed on the island and periodically dropped grenades into the cell house. The San Francisco police patrol boat hovered around The Rock and fighter planes power-dived at it for psychological effect, each dive driving up screams of terror from the noncombatant prisoners inside. The San Francisco shoreline was packed with spectators. When gunfire from the inside ceased, a guard with a rifleman at his side cautiously moved into the prison and found three of the insurrectionists lying dead on the floor. Two rebel inmates were later executed for their part in killing two guards. The sixth inmate was given two life terms plus 99 years.

In 1962, Attorney General Robert Kennedy announced that Alcatraz would be shut down the following year. The prison buildings, which had been constructed during military days in 1909, were beginning to fall apart, a new sewage treatment plant was needed and repairs were estimated to be as high as $5 million. Also, it took about $30,000 a year to keep one prisoner at Alcatraz, compared with the $5,000 to $8,000 that it cost at other prisons. The final straw was the most spectacular escape of all, facilitated by the physical deterioration of the cell house.

When convicted bank robber Frank Lee Morris was transferred to Alcatraz in 1960, the associate warden made a special visit to his cell to warn him against trying to escape. He knew Morris had broken out of

other prisons, and he was aware of an entry on Morris' file sheet: I.Q. 133.

As described in *Escape from Alcatraz,* about a year and a half after Morris landed on Alcatraz he learned that a blower had been removed from the ventilator shaft above his cell block. He studied the air vent under his wash basin, a six-by-ten-inch opening covered with a metal grille. If only there were a way he could enlarge the vent. . . . Fidgeting with a pair of nail clippers, it occured to him to take the file lever and chip at the concrete around the grille with the point. Thus began an 11-month project.

He enlisted three others in the plot, instructing them to clip ad pages from magazines, making clean cuts so they would not be missed, and to order oil paints and brushes and take up painting.

Thus equipped, Morris completed his excavation, fashioned a facsimile of the vent grille out of pulped and painted magazine pages and used the plaster chipped off the cement to make a dummy head and neck, using hair from the barber shop. The other three conspirators followed suit. Between them, the four cached 53 raincoats to make a rubber raft, a set of plywood oars and finally managed to grind off rivets holding the outer cap on the ventilator shaft.

One night, the venture was carried out at last, three of the four men pushing off on their raft. One was left behind because, hearing word that his cell might be searched, he had recemented his vent opening with far better cement than the stuff that had been chipped away. Frank Lee Morris and the Anglin brothers may have escaped successfully. Their one oar (the other was left behind accidentally) was found floating 200 yards off Alcatraz and a plastic bag full of personal effects, including 60 family photographs and a money order receipt made out to Clarence Anglin, was found near Angel Island, just across from Alcatraz. For prison authorities, this was proof positive that the raft had capsized and the men drowned. Yet not one of the three bodies was ever found. Also, six months after their disappearance, an escapee from Alcatraz actually made it as far as the San Francisco shoreline.

By 1969 Alcatraz prison had been shut down for six years. Only a caretaker, his dog and several patrolmen lived there when a boat began circling the island. Suddenly, a husky, dark-haired man stepped to the edge of the boat, dived into the bay and, with great difficulty, began swimming toward, not away from, The Rock. The young man was Richard Oakes, a 27-year old Mohawk Indian who became one of the leaders of the Indian occupation of Alcatraz Island.

Oakes and four other Indians were removed by the Coast Guard, failed in a second attempt, recruited a large group of Indians and, on November 20, captured the island. The caretaker blew his bugle, called his superior on the phone and said, "The Indians are here, the Indians are here." He told the Indians that they were trespassing and they retorted that *he* was the trespasser, but that if he was cooperative they'd set up a Bureau of Caucasian Affairs and make him the head of it.

Once the word spread that Alcatraz had been taken, Indians were drawn in not only from the United States, but from Canada and Central and South America as well. But the occupation petered out in hunger and disillusion.

Today the Park Service is seeking the public's ideas on what is to become of this small island in the San Francisco Bay with a history many times its size.

Visitors now stroll the old recreation area where high walls shut out all view of Golden Gate Bridge.

New arrival at today's Alcatraz seems oblivious to its relic of Indian occupation (below eagle).

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By Jeanne M. Schinto

Where weaving is a way of life

A Ghanaian weaver comes to Washington to explain his craft and to show how the intriguing African fabric kente *is made*

Bobbo, which is to say, Etsey Kwashia Gilbert Bobbo Ahiagble, is an Ewe master weaver of exquisite *kente* cloth. He came from Ghana, West Africa, to Washington's Museum of African Art for a three-month residency during which he demonstrated his art.

In Ghana, the loom is a holy place and the weaver sits in it as a Westerner might sit in a cathedral. Its many parts—the finely carved pulleys which are essentially sculptural, the bobbins, the treadle made of coconut shells to be held deftly between the toes—are full of deep spiritual significance and mystery for the weaver and for those who visit him. He works in the company of other weavers, singing, retelling old weavers' parables, competing to make the most beautiful *kente,* or simply to make the most.

In Agbozume, Bobbo's hometown and one of Ghana's three weaving centers, almost all the men weave for their livelihood. But, to them, it is much more than a profession, even more than an art. Weaving is a vocation, a destined way of life, a legacy handed down from generation to generation heavy with history and mystical secrets. Witness that Bobbo's great-grandfathers and grandfathers were weavers, his father was a weaver, his three brothers are weavers, and his three sons will probably be weavers.

Bobbo began weaving on a child's loom at his father's side when he was six. After that, Bobbo recalls, he couldn't get to sleep all night, he was so excited about going back to the loom the next morning. And all the mornings of his life.

A living exhibit of singular charm, according to all who met him, Bobbo creates *kente* cloth and spins folktales and comments on life which, to him, is inseparable from his intricate art.

The treadle of the Ghanaian loom is made of coconut shells which are flashingly worked by nimble toes and consequently, to coin a word, are *pedipulated* barefooted.

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By Donald Gould

Despite skeptics, Lourdes is still source of solace

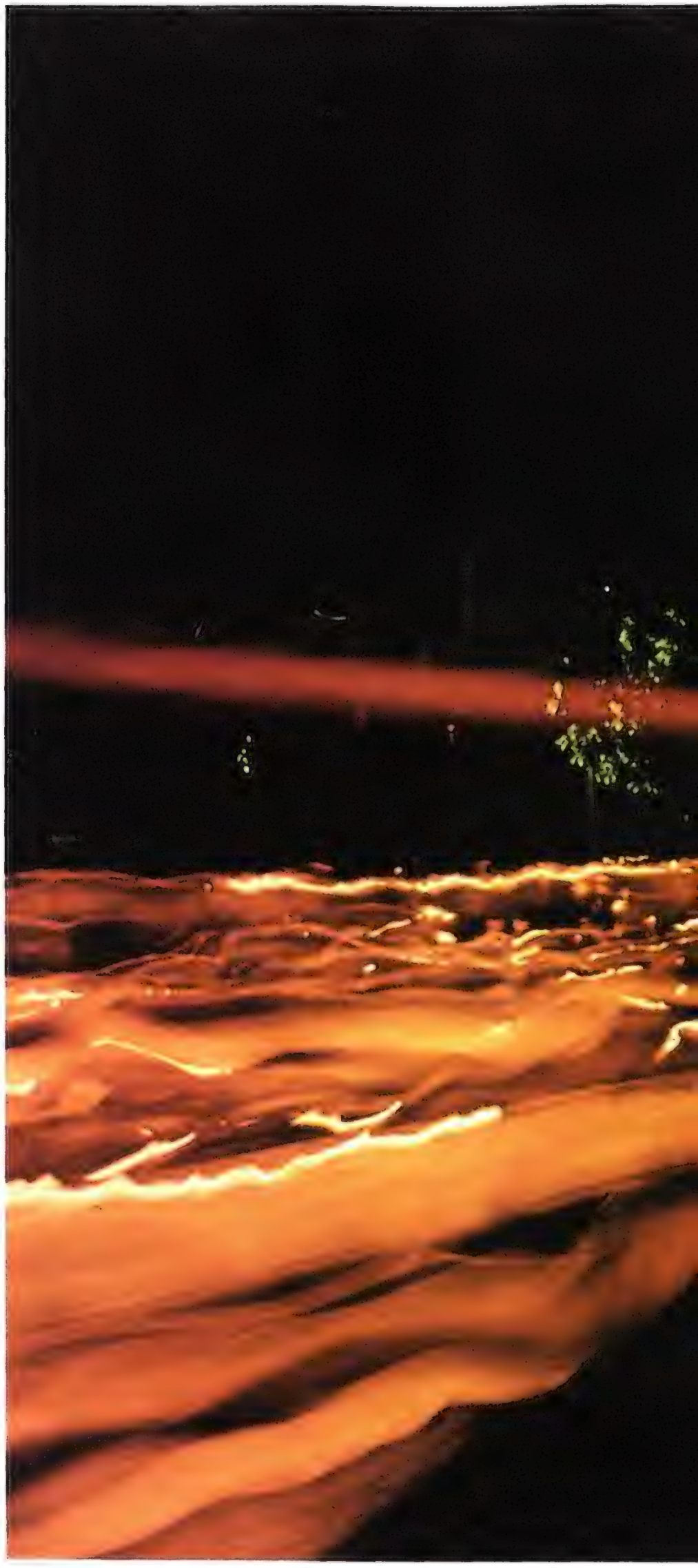
Accepted miracles are few, and even those are open to dispute, but pilgrims find spiritual comfort and, often, a good time

Every year some 50,000 sick people go to Lourdes, a tiny fraction of the three million pilgrims and tourists who visit this small French Pyrenees town during the season, making it one of the most overcrowded and popular of all Roman Catholic shrines. But it is the outnumbered sick who are the center of it all, because the box-office appeal of Lourdes depends upon its reputation as a place of miraculous healing.

Is this distinction justified? Is there indeed some power operating in the place which transcends scientific belief, so that under its influence cancers dissolve, paralyzed and wasted limbs function again, the blind regain their sight and the deaf their hearing?

Lourdes became a holy place more than a century ago, when, in 1858, a sickly peasant girl named Marie Bernarde Soubirous (later canonized as Saint Bernadette) reputedly saw several visions of the Virgin Mary in a grotto by the river Gave de Pau which runs through the town. Over the centuries countless devout Roman Catholics have claimed a visionary sight of the Virgin, and most such claims have been discounted by the Church. Bernadette's encounters, however, were accepted as authentic.

Why, against all the odds, this simple youngster's unsupported story should have been believed is anybody's guess. At first, most of Bernadette's fellow villagers thought she was mad. Perhaps the Bishop of Tarbes, within whose diocese Lourdes then fell, had some political reason for welcoming a wondrous happening at that time. He certainly had a reputation for



The nightly candlelight procession to the basilica at Lourdes climaxes a day of religious

rites. Only a small percentage of the pilgrims come to seek a physical cure for themselves.

Photographs by Loomis Dean

advancing the importance and the influence of his see by all possible means.

The circumstances surrounding the creation of the shrine at Lourdes bore no particular relationship to healing. Bernadette did not even ask the Virgin for relief from the painful illnesses which troubled her so much. But according to the girl's account of her experiences at the grotto, the vision repeatedly instructed her to drink and wash herself at a nearby spring. The site of the original muddy seepage was dug out to provide a free flow of clean water for the benefit of the invalids who began to flock to the spot.

Although Bernadette did not see her vision until the last half of February 1858, before the end of March (according to an attestation by the indefatigable Bishop of Tarbes) three miraculous cures had already taken place. The shrine's reputation as a place of healing was thus rapidly established, and its popularity has persisted and grown despite the fact that, in contrast to the credulity of the local bishop of the time, the Church has shown extreme caution and has demanded substantial evidence before recognizing any of the many "cures" claimed as miraculous by visitors to Lourdes. Indeed, only 63 miracles have been certified as authentic (including seven in 1858) during the entire 117-year history of the shrine.

Without necessarily questioning the good faith of the witnesses and the officials involved, it is sensible to remain skeptical concerning the accounts of the earliest cures. Awe and excitement over the unexplained experiences at the grotto were still intense, and enthusiasts make poor witnesses.

But what are we to make of the remainder of the cures on the official list of miracles? The requirements for inclusion in this list are stern. There has to be sufficient evidence that the person concerned was indeed suffering from a specific illness producing some observable abnormality in the body (proved by such means as X rays, chemical tests, physical examination, and so on) before the claimed cure took place. It has then to be shown that the main signs and symptoms of the patient's malady disappeared within hours of the supposed divine intervention. The original improvement must thereafter have been maintained for several years. Moreover, there must be no likelihood that the change could have been brought about by any physical treatment the patient may have been receiving at the time. In other words, the pilgrim must have made a medically inexplicable recovery.

Two separate medical tribunals decide. The first consists of all the doctors who happen to be on the spot when a miraculous cure is claimed. There is only one physician on the permanent staff of the considerable organization which now supports and surrounds Bernadette's original shrine. He is the president of the medical bureau. The other members of the first tribunal would be doctors in Lourdes on a brief visit, either privately or attached to a pilgrimage of invalids. The nature and quality of the skills and experience guiding the deliberations of such a jury are thus both variable and a matter of chance.

If a majority decides that an inexplicable recovery has occurred, the facts are reviewed by a second panel, but only after a lapse of several years. The 11 members of the second tribunal, the International Medical Committee, are chosen by the Bishops of Tarbes and Lourdes. Each of the members is a recognized specialist in some branch of medicine, and each is from a different country. This committee meets in Paris once a year. Again, a majority vote decides whether a lasting cure has been achieved and, if so, whether it can be explained in natural terms.

Author Gould, a physician himself, wrote an article on overpopulation for SMITHSONIAN, *November 1974.*

In the grotto at night, left, worshipers kneel before a statue of the Virgin Mary. Above, invalids attend Mass outside basilica. There are "hospitals," and plenty of wheelchairs, but the shrine has no facilities for the desperately ill. Some pilgrims are bedridden, but most can fend for themselves.

After drinking some, Kathleen Ditchburn pours water from the Holy Spring over her head.

If the experts decide that an event they cannot account for has taken place, the dossier of the case is sent to the bishop of the diocese in which the cured pilgrim lives, and if a canonical commission concludes that all the evidence points to a divine intervention, the bishop may declare a miracle.

During the past 20 years only 75 cures have been accepted by the first committee as supernormal, and of those only 18 have been finally recognized as miracles. It might seem that any apparently miraculous healing which survives such stringent investigation must constitute prima facie evidence for the belief that God does sometimes suspend the laws of nature in answer to prayer.

Yet some illnesses are self-limiting, and disappear when they have run their course. Others produce symptoms which wax and wane, so that the victim of a duodenal ulcer, for example, may be in pain and misery one week, but feeling fit and well the next.

A neurotic person can suffer all manner of unpleasant symptoms, such as a crippling pain in the back, when there is, in fact, nothing whatever wrong with any of the body's working parts. Such people are often highly suggestible, and their symptoms can often be dramatically relieved by hypnosis, or any of a wide variety of other procedures or circumstances (from falling in love to acupuncture) which have the effect of persuading them that they might as well get better.

More rarely, purely psychological factors can produce much grosser disabilities, such as blindness, paralysis or deafness. A "hysterical" paralysis of the legs was not uncommon during World War I among soldiers who became unable to face the repeated, senseless and horrific business of "going over the top." The hysteric is convinced of the reality of the physical fault which his subconscious mind has invented. But an appropriate physical or psychological stimulus can break the block upon the instant. This is undoubtedly the explanation for a proportion of apparently miraculous cures. Also, a good many "cures" work by encouraging the victims of very real bodily effects to believe that they were not half so ill as they thought they were. And finally, patients occasionally recover from advanced diseases, for reasons we still don't understand, long after the doctors have labeled them incurable. An "inoperable" and "untreatable" cancer can suddenly remit. Several careful inquiries, conducted with the strictest scientific rigor, have left no doubt that in the case of cancer the "impossible" does sometimes occur.

During the entire history of Lourdes only two cancer victims have been credited with a miraculous cure. In view of the vast numbers of supplicants for holy favor who visit Lourdes (nearly 30 million within the last ten years), chance alone could account for a natural and spontaneous recovery from cancer having occured in two of them.

The same general arguments apply to other serious and frequently mortal diseases. Particularly tuberculosis, which, remarkably, was the illness suffered by more than one-third of the pilgrims whose names appear on the list of miraculous cures. Until the advent of quite recently discovered drugs, tuberculosis was a major cause of death in the Western world, so that

Here Mrs. Ditchburn, on her third pilgrimage from England, kisses the rock in the grotto.

many visitors to Lourdes probably suffered from this infection. It is also a disease from which a small but significant proportion of infected patients recover without the benefit of medicine when, for some reason, the body's defense mechanisms suddenly become more powerful than the invading germs.

So, in the case of tuberculosis also, chance alone would make it likely that, over the years, a couple of dozen victims of the disease would show some striking improvement in their physical state at or about the time they happened to visit Lourdes.

All these considerations make the task of proving that any miraculous cure has ever occurred at Lourdes formidable. The medical experts who advise the Church in such matters are, of course, fully aware of all the traps and complications, and they lack neither honesty nor knowledge. What they do not have is either the time or the resources needed for undertaking the kind of investigations nowadays considered to be essential before a claim that some particular treatment benefits or cures a particular disease can be sustained. The elaborate tests, stretching over years, which many countries now require by law before a new drug can be put on the market exemplify the scale of the effort demanded. Clearly, the two medical panels investigating alleged miraculous cures experienced at Lourdes cannot approach, even remotely, such rigid standards of proof.

Does this mean that Lourdes is the largest, most profitable, and longest-running confidence trick of all time? "No," say millions of satisfied customers. Just what is it that these visitors think they are buying? I asked some.

Last summer Kathleen Ditchburn and her husband Jack made their third pilgrimage to Lourdes. Kathleen is 59 and Jack is 71. Kathleen is a robust and boisterous Irish woman who has lived in England all her life. They were not going in search of a cure for any physical ills. In Kathleen's own words, their journey was "a sort of thanksgiving."

Kathleen first went to Lourdes in 1959, but not for herself. She went with her priest, who served her parish in the English county of Kent.

"At that time we had a very lovely parish priest. He'd been with us most of his life. He was like me. His parents were Irish. He was a lovely old man and everybody loved him. Those were poor times. He felt he wanted to go to Lourdes."

Kathleen and Jack went to Lourdes with their old priest, but as he got off the boat he stumbled and tore a muscle. He was in considerable pain, and the pilgrimage doctor wanted to put him in the hospital, and

then send him on in the ambulance train, but this suggestion provoked a fine old Irish argument and, in Kathleen's words, "We kept him with us."

This wasn't the only service Kathleen did for her priest. She went to the Mother Superior in charge of the hospital for sick pilgrims within the holy domain.

"She was Irish and I was Irish, and I was able to talk her into letting me have a chair to take him down to the grotto. So he was the happiest man alive. I got to know him very well and I said, 'Father, what are you praying for—are you praying for anything special?' And he said 'Well, dear,' he said, 'I came to Lourdes specially,' he said, 'because all my family is dead and soon I'll be forced to retire, and I've got nowhere to go.' So he says 'I've come to pray to Our Lady that I might have somewhere to go.'

"When we got back home he wrote to Ireland to the Benedictine monks and asked them to have him. He said he'd like to die there, and he said he wouldn't mind studying and taking the habit, but they wrote back and told him he was much too old.

"Well, by this time he was good on his legs again. So do you know what he did? He just packed a small bag and went up to London and took a flight over to Ireland and went to Limerick to this Benedictine abbey to show them that although he was old one way, he wasn't old the other, because he had a very young heart and young mind.

"What do you know—they accepted him, and he was there for about 15 years until he died at 95."

Jack and Kathleen are representative of the pilgrims (or, if you like, tourists) who find a brief visit to Lourdes physically and emotionally sustaining. They are acutely sensitive to the religious significance of the place, but they are also out for a good time, and they have it. They delight in the ceremony, the emotionalism and the delicious, if half-frightening, belief that there is a kind of magic working all around them.

Along a 60-yard stretch of a wall beside the grotto, there are a dozen or more brass push-button spigots, like the devices on the drinking fountains in public parks. The water that spurts when these buttons are pressed is supposed to be the issue of Saint Bernadette's spring. The faithful queue to get at the holy elixir. Kathleen and Jack refresh themselves there two or three times a day.

"And it's beautiful—the water—did you ever drink it at all? Oh, it's a beautiful drink."

Once, after offering a sip of the miraculous water all round, and having a slop of it left in her beaker, Kathleen laughed and tipped the dregs over her head, saying "Shenanigans—that's the penicillin part of it."

A couple of hundred Irish pilgrims were there on a five-day visit at the same time as Jack and Kathleen. About a quarter of them were invalids. None was at death's door. There are no facilities for treating the desperately ill at Lourdes. The two hospitals there are not hospitals at all in the modern sense of the word, but hostels for the sick. The "sick" are bedded down in wards, and there are lots of wheelchairs and invalid carriages available. But although some of the sick pilgrims are bedridden, a majority can more or less fend for themselves.

Most of these Irish sick were up and about, and they were having themselves a ball. There was more laughter and warm companionship and rowdy optimism in those wards than you would find in all the bars and drinking clubs of London or New York. Managing somehow to make his voice heard above the babble of voices, one pilgrim breaks in with a story.

"There was this Irishman, going home from a holy journey, and he had a couple of bottles of poteen with him. So the customs man says 'And what have you got there?' 'Holy Water' says the man. So the customs officer sniffs at the bottles. 'Ah,' he says. 'Another bloody miracle.' "

Everybody roars with laughter, although they've probably heard the tale a dozen times before.

Then there is Kathleen herself, who, after talking, forever and again, about the spiritual and physical afflictions of all manner of other people, finally let slip the information that she had been suffering the pain of a peptic ulcer for many years.

Had the immersions done her ulcer any good?

"Oh, no, it still bothers me. But it gives me strength to bear it, perhaps, a bit more, you know."

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Mrs. Ditchburn prays in the grotto, as will most of three million visitors this year.

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Bicentennial fad transforms hydrants into historic figures—Paul Revere to Franklin and Johnny Appleseed

For years no one has paid much attention to fire hydrants except firemen, dogs and people searching for a place to park. Now, abruptly, fireplugs are worth looking at in scores of towns all over the United States. The idea of dressing them up as painted figures might seem to be old hat. But it got impetus from the plugs of Charleston, South Carolina, painted to resemble 18th-century soldiers.

The sight stirred a visitor from South Bend, Indiana, Ms. Ruth von Karowsky. Back home, she painted the fireplug in front of her house. Result: the formation of the South Bend Beautification Foundation, Inc., which researches designs and paints every plug in the city as a Bicentennial project. Ms. von Karowsky is now president of a South Bend firm which promotes and sells packaged and copyrighted designs to other communities across the nation, seeing to it that patterns are custom-tailored to the kind of hydrant a town happens to have.

The hydrant craze quickly reached California, as these photographs, all from the city of Belmont, attest. It is now a coast-to-coast phenomenon, encompassing abstractions as well as people and animals. Neither firemen nor dogs have registered complaints. Kids have found that no matter how a hydrant looks it can still be turned on when the summer streets sizzle with heat. And the police know that they can ticket a car without a qualm, whether it's parked in front of Paul Revere or Uncle Sam himself.

Continued page 128

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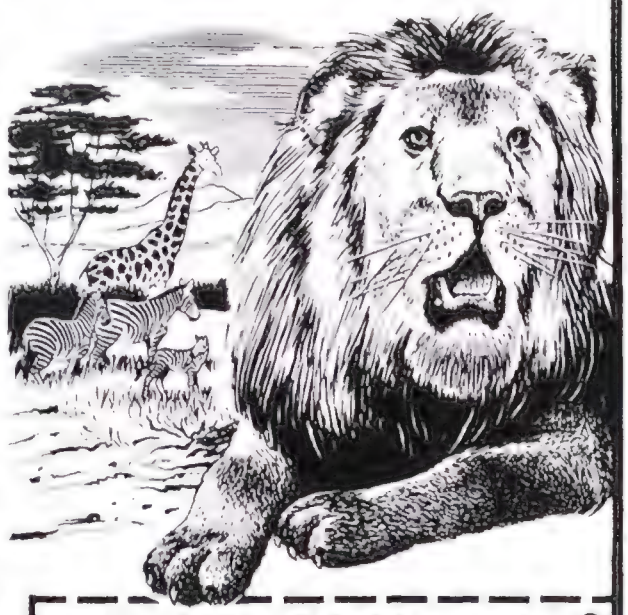

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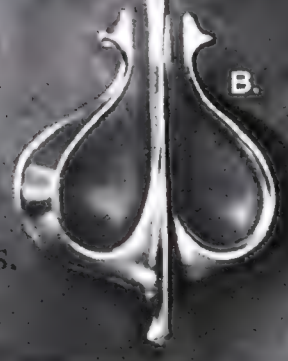

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Phenomena, comment and notes

Flying on gossamer thread, trees learn how to grow, ecosabotage and the obstetrician in astrology

No matter how many times astronomers tell us it's all baloney, many people harbor the lurking suspicion that the planets may have some effect on us, as astrologers assert. After all, if the moon affects something so vast as an ocean . . .

Not long ago, to demonstrate that it is all hokum, Cornell astronomer Carl Sagan (never one to ignore a controversy) computed the gravitational attraction of Mars on newborn babies and found it to be less than that of the obstetrician.

Now, Mr. Lee Ratzan, a senior programming analyst at the College of Medicine and Dentistry of New Jersey, has pursued the matter yet further, assigning the problem to his students. The assumption was that "tidal forces induced by planetary masses produce differential forces . . . on the bloodstream flow of the child and manifest some effect on the psyche of the offspring."

Further assumptions, according to a paper made available to this column by Mr. Ratzan, are that a 3.4 kilogram baby (7.4 pounds) is lying lengthwise in the direction of the planet to be assessed and that the obstetrician weighs 100 kilograms. These figures, plus planetary masses and distances, were run through the computer via a series of complex formulas. The results were as follows: The greatest gravitational forces exerted on the child at the moment of birth are, in order, from the moon, from Jupiter, from the MD (if he's standing half a meter

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from the baby), and then from Mars.

But these forces must be kept in perspective, says Mr. Ratzan. The displacement caused by the force of the moon on this baby is the equivalent of the distance of two red blood cells placed end to end and that is not enough to "disturb the hydrostatic equilibrium."

Mr. Ratzan and his students further computed that for the physician to compensate for (or dominate) the gravitational effects of all the planets except the moon, "he must either hover over the child (at a distance of 6.3 inches) or increase his mass to 900 kilograms. The first technique is highly preferred.

"Thus, the accurate astrologer should more properly consider the configuration of the personnel in the delivery room rather than the celestial configurations to ascertain in detail an individual's astrological makeup. . . . But then, under what sign would the individual be born? The 'oxygen in use—no smoking' sign?"

Swan song

An asteroid that was rediscovered this year, having been only sporadically seen since 1932, has been given a distinguished name: Whipple. The asteroid, found by Richard McCrosky and Jerome Shao at the Smithsonian-Harvard Center for Astrophysics while asteroid hunting at the Agassiz Observatory, was named for Dr. Fred L. Whipple, an astronomer who was long the director of the Smithsonian Astrophysical Observatory.

It is common enough to give astronomers their rightful place in orbit around the sun: The asteroids Bondia, Pickeringia, Shapleya are among such celebrations. What is worth noting is that this one is called simply Whipple. No suffix. Now, if scientists are going to give up Latin as most schools have, we can assume it is dead and gone forever.

Vertical take-off

One of the most attractive features of the invariably interesting *New Scientist* is its last page, produced by someone known as Ariadne, who generally reports on the inventive insights of a friend also with a pseudonym, Daedalus. There are times when Daedalus is so inventive that he escapes understanding, but consider his latest offering (volume 67, number 958): a new kind of parachute based on the

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capacity of a spider to float on the breeze by extruding a long thin thread behind it. The principle involved is viscous drag, and Daedalus suggests that a similar parachute for a human would have to be 200 kilometers long—longer than the depth of the atmosphere. Undaunted, he suggests using 100 strands of 2 kilometers each that would unroll on spindles as the parachutist dives from the plane. And perhaps, if you could unravel your threads while standing under a thermal, you would become the first VTOL man. It could finish hang-gliding.

The lessons a tree learns

What with the cost of paper products high and pavement replacing open ground, not too many people simply take trees for granted anymore. But even tree lovers take for granted that trees grow the way they are supposed to grow. But how, in fact, does a tree "know" how to grow? Thomas A. McMahon, a professor of applied mechanics at Harvard, asked himself (and his students) this question some time ago, and in the course of answering it came up with some interesting insights, reported in *Scientific American* (volume 233, number 1).

He was able to demonstrate, for example, that if a hypothetical twig or branch gets too long compared to its diameter, it will sag under its own weight until its tip becomes closer to, rather than farther from, the trunk. Just before the branch begins to sag, it reaches what is called its critical length. (Presumably an advantage of length of branch is to get leaves into the sun.) How does the trunk of a tree "know" how thick it should get as it grows taller?

Professor McMahon first found a mathematical rule for such matters: For branches not to exceed their critical length, and for trunks to achieve "neutral stability," their diameters must be "proportional to . . . the length times the square root of the length."

Moving from theory to trees, the professor and his students analyzed and measured several trees—every twig of them—and found that this rule indeed applies. Well, then, how does the tree "learn" this rule?

He hypothesizes that when a branch bends, features in the cambium called wood rays may sense the tension on the cells at the top of the branch and the

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A few pointers, then, about original prints:

Original prints, whatever the process used to create them, are "hand-pulled" under the artist's supervision, or by the artist himself. This means that any work produced photographically or by another purely mechanical process is not an original print.

Has the work been "hand-pulled"?

If you examine a print under a magnifying glass and discover a regular pattern of small dots, you will know immediately that it is not an original work.

If the print is a serigraph (produced by a silk-screen process), the ink will seem rather like paint and appear to be sitting upon (rather than absorbed into) the paper.

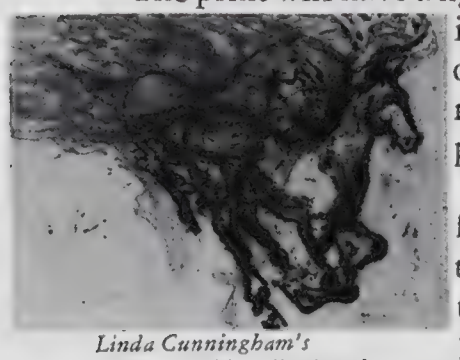
Etchings and engravings will produce a physical impression on the paper itself.

Contemporary original prints will always be signed in pencil by the artist himself, to indicate personal supervision and approval of the individual print.

Is the edition limited and is the print numbered?

Original prints are always produced in limited editions, at the most several hundred copies. If thousands of copies are available, then the work is almost certainly *not* original. (In most cases, to assure that the integrity of their work is not violated, artists will destroy the plate after the edition has been produced.)

The print will have a figure on its border, indicating the number of prints pulled and the number of the individual print in the sequence.



Linda Cunningham's original etching, "Winged Pegasus," limited edition of 60.

For example, the figure 50/100 means that the edition has been limited to 100, and that this is the 50th print pulled.

There's a lot more to be learned about buying original prints, more than we can tell you on this page.

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compression on the bottom cells and trigger some signal to the tree to supply more auxin, a growth hormone, to the about-to-droop branch, thus increasing its diameter before it gets much longer. The same could apply to the trunk, he suggests, perhaps explaining why trees grown in greenhouses grow thicker if you shake them every day. They need the exercise to know when to turn on the juice, as it were.

In any event, as Professor McMahon says in what should become an immortal quote: "Theories rarely threaten the mystery of natural phenomena."

A fictional fox

Several years ago, the Smithsonian was in touch, via an intermediary, with a man known to the world only as the Fox, that Robin Hood of the Earth children who polluted the waiting rooms of polluting companies and committed other lightning-swift acts of sabotage in the name of the environment. Nothing came of the contact. The Fox dropped out of sight along with that extremist activity—ecosabotage. Normality has returned, the auto-emission standards are being relaxed and the strip-mining laws are in need of dental work. Such conditions are the sort that give rise to foxes.

Of course, no decent person can condone a recent book that grew perhaps not so much from the memory of the Fox as from the intense ambition on the part of a desert rat and author named Edward Abbey to blow up Glen Canyon Dam. Mr. Abbey has sublimated his ambition in a novel called *The Monkey Wrench Gang* (Lippincott), a totally subversive story about a group of four zany maniacs who combine forces to terrorize the machines of the industrial world that have put a layer of smog over the Four Corners area of the American Southwest.

If books were rated in the manner of movies, this would be an R book. Ribald, outrageous and, in fact, scandalous, it is precisely the kind of tract to keep out of the hands of the impressionable, lest they take its carefully plotted detail as an instruction manual. For anyone who needs sublimation of occasional feelings of ecorage, however, the book can be cautiously recommended.

Does justice triumph in this novel? Yes and no. In any event, Glen Canyon Dam is still standing.

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Book reviews

Francis Place and the Early History of the Greenwich Observatory
Derek Howse
(Science History Publications, $12.95)

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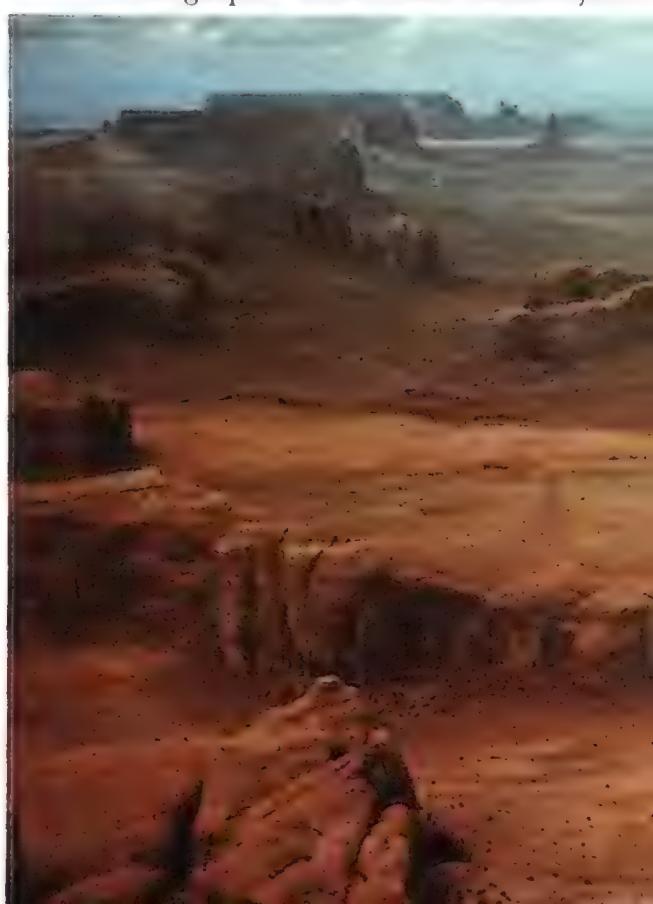

in Washington in 1884. As a sop to the French, the conferees also voted to recommend adoption of the metric system, a rational goal still worthy of pursuit, painful as astronomers may find it to refer to the "508-centimeter" Hale Telescope on Mt. Palomar.

The remote antecedent of the 1884 conference was the appointment of John Flamsteed as Charles II's "astronomical observator" on March 4, 1675, just 300 years ago. Five months later the new Astronomer Royal himself laid the foundation stone for the observatory, an appropriately handsome building designed by Christopher Wren. Flamsteed drew up a horoscope for the event, to the consternation of modern astronomers who eschew astrology and who worry that one of their heroes from the Age of Enlightenment might have been tainted. But it was all in fun, for Flamsteed added the Latin words *Risum teneatis amici,* which might mean "Hold your laughter," but when read in the context of the Horace poem from which it derives clearly means "May this keep you laughing, my friends."

The horoscope is one of several ancillary illustrations in this nicely designed picture book. But pride of place goes to a set of a dozen etchings of the Early Greenwich Observatory and its instruments, here reproduced together for the first time since the early 18th century, and very handsomely at that. The original etchings, by the artist Francis Place, are so rare that only one complete set is known to have survived. The supporting commentary by Commander Howse (head of the Astronomy Department at

Man from his book, *In America* (Viking).

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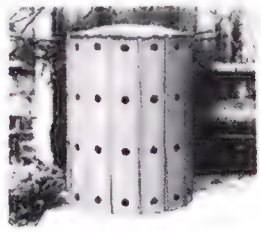

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the National Maritime Museum) gives the intrigue-ridden background to the founding of the Royal Observatory and reconstructs many of the technical details of the plates that would otherwise have been lost.

The wide size of the book is dictated by two 21-inch (53-centimeter) plates, one of the "Prospect Toward London" and the other of Flamsteed's observing well. The latter was designed to accommodate an 87-foot fixed telescope pointing to the zenith, but only two observations were recorded (in the summer of 1679), and the conspicuous failure was attributed to "the damp of the place."

Fortunately the other instruments, including the first large measuring devices equipped with telescopic sights, were eminently successful; they paved the way for still more accurate instruments, and eventually, to that fine brass line that separates the east from the west.

—Owen Gingerich
Astrophysicist and Historian of Science
Smithsonian Astrophysical Observatory

Natural Man: The Life of William Beebe
Robert Henry Welker
(Indiana University Press, $11.50)

Naturalist William Beebe, who lived from 1877 to 1962, is probably best remembered for his daring undersea exploits. Descending in a bathysphere as deep as 3,000 feet, he observed and recorded what no man had seen before. These descents into oceans were scientifically oriented, yet they also undoubtedly appealed to Beebe for their drama, their novelty, even their danger. As a scientist Beebe made diverse observations and studies in the fields of ornithology, ichthyology and entomology. As a man he was a vital human being, an enthusiastic observer of the natural world who considered the most admirable American trait to be "an enthusiasm for living to the limit."

Beebe's scientific work, Robert Welker informs us, was frequently condemned by the academic community. One angry critic suggested that Beebe's newly identified six-foot fish, *Bathysphaera intacta,* was in fact two smaller fish swimming close together and improperly observed through the window of the bathysphere. Another described Beebe as "assuredly less hampered by standard inhibitions than many of his scholarly friends."

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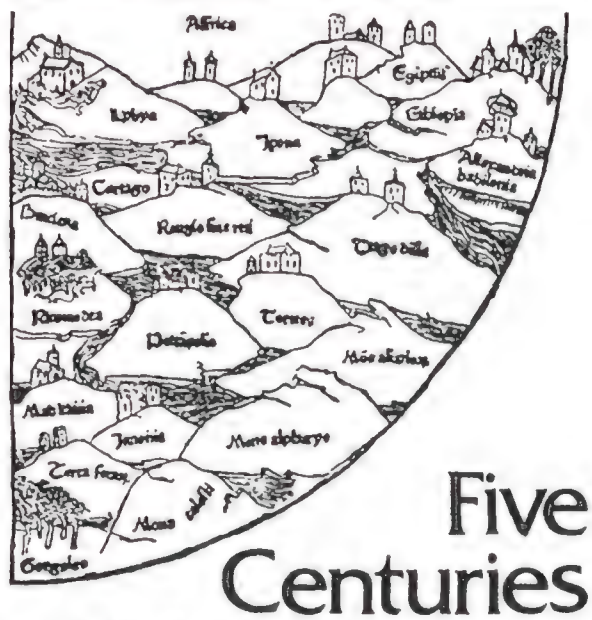

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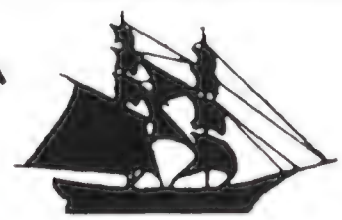

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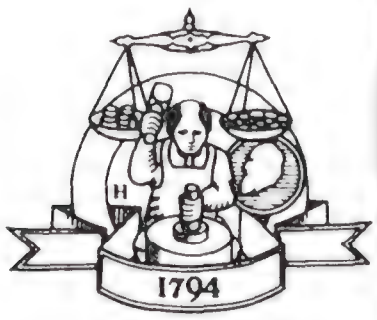

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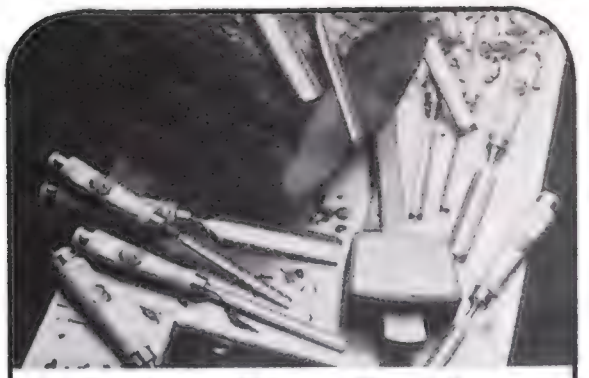

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Beebe was not above exaggeration and distortion in his writing. Yet such distortions were apparently confined to the human arena, more specifically to his own self-image. Beebe was willing to lie about his educational background, to invent his own *machismo* (including a story of killing a native bowman who shot arrows at a Beebe expedition). But as Welker demonstrates, the evidence does not indicate that Beebe's need for recognition led him to distort his observations of the natural world, which he admired in a more exuberant way than his academic and less extroverted colleagues.

This—the defense of Beebe's particular orientation to the natural world—is the strongest aspect of Welker's biography and its most significant contribution. Beebe's foremost talent was writing, sensitively relating his adventures and perceptions of nature to a general audience. This rare capacity, sometimes sneered at by academicians, has many benefits for society, for art, even for science.

Welker praises another Beebe capacity —the willingness to crawl in mud, climb a tree or descend in a diving suit, to put himself as closely as possible in the same world as the natural subjects he studied. This, too, reflects Beebe's celebration of life. Among the contributions of a broadly talented man like Beebe is the influence he may have upon other work. In this context, the author describes his subject as "almost an earlier incarnation of Konrad Lorenz," the pioneering ethologist. Welker cites parallels—sometimes cause and effect relationships—between both the writing and field techniques of Beebe and the work of several scientists, naturalists and fiction writers, ranging from George Schaller to John Steinbeck, from Jane Goodall to Rachel Carson.

By Welker's own description, *Natural Man* is conceived "not as a conventional biography but as a critical inquiry and analysis." This goal is realized. The author gives us a thoughtful and objective analysis of Beebe's writing, his work, his science. But Welker's clinical, cautious, sometimes ponderous approach does not deal adequately with his subject's human side. We are told of Beebe the exuberant explorer, the embittered divorcé, the charming, sensitive, forceful human being, but we never meet him in action. We get only an abstract look at the natural man himself.

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is probably through his own writing—he was a prolific writer—left in abundance. Although, given Beebe's writing skill, his capacity to utilize the techniques of fiction to mask his deeper personality, even this insight is imperfect. Which, as Robert Welker points out, is probably just the way Beebe wanted it.

—Jack Hope

Author of *A River for the Living: The Hudson and its People*

Eagle and Sword: The Federalists and the Creation of the Military Establishment in America, 1783-1802
Richard H. Kohn
(The Free Press, $12.95)

In a land born of revolution, the heart of the political tradition was suspicion of power and fear of a militarism through which a tyrant could seize power. In the heat generated by these fears, which clashed with the determination to defend (and the urge to expand) our borders, and the attempts of ambitious men to exploit all conflict, a military establishment was forged in the United States between the end of the Revolution and the turn of the century. In *Eagle and Sword,* Richard H. Kohn records this military aspect of our history.

The shaping of the military establishment was part of a larger political struggle. An army was central to the Federalist advocacy of a national government with diplomatic, military and economic muscle. Opposition came from those who wanted to limit central authority.

In the post-Revolutionary nation-building period, the Federalists were the dynamic force. Circumstances and the always revered Washington were on their side. Dissatisfied, to say the least, with the militia's wartime unreliability, Washington proposed a permanent national military force. Popular antipathy to a standing army made the professional corps he advocated politically impractical. But a series of crises, including frontier defeats by the Indians and mob rebellions against civil authority, eroded the opposition and led, piecemeal, to the establishment of a national force.

The first such peacetime army was born in 1784 of a Congressional "recommendation" that four states contribute militia to comprise a 700-man force for 12 months of duty. Not under state control

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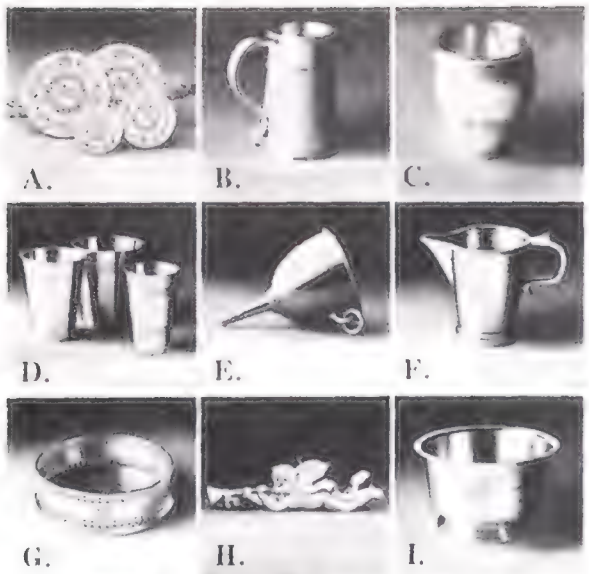

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nor wholly under Confederation authority, this ancestor of today's military establishment reflected the weakness of the Articles of Confederation. A sounder system for the common defense had to await a new political structure.

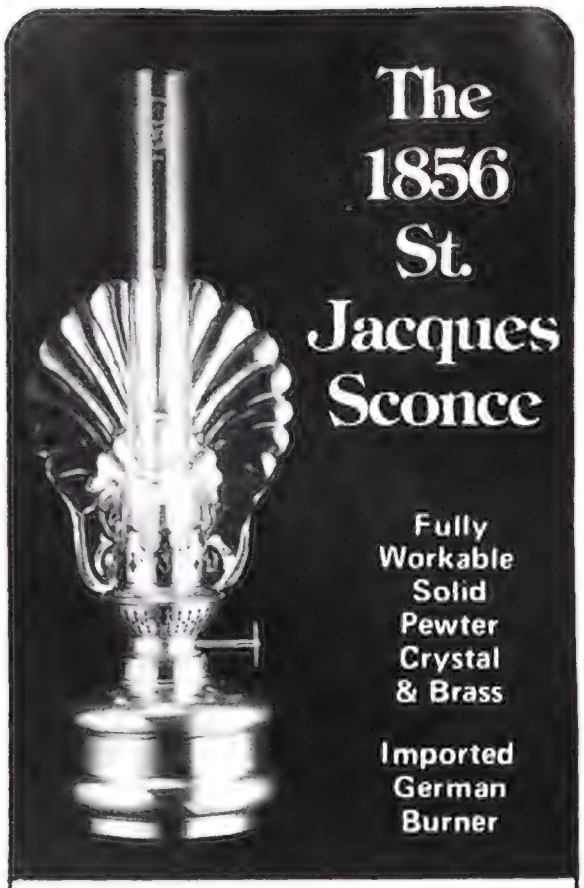
The new Constitution—hesitantly—authorized the government to create a national army. "[I]f they [armies] be necessary," said James Madison, "the calamity must be submitted to."

The army grew during the 1790s. But the issue of militarism eventually split the Federalist Party. The climax came with the establishment in 1798 of the "New Army." The 12,000-man force was rationalized on the basis of tensions with France, but its creators saw it also as an instrument of domestic leverage. Crudely political—Hamilton, slated for command, screened officer candidates on the basis of their Federalist loyalties—the New Army became an embarrassment to President Adams. When negotiations removed the specter of war with France, he demobilized the New Army.

The "High Federalists'" vision of the Army as a bulwark against domestic dissent stemmed from their belief that the Republican (Jeffersonian) Party constituted a conspiracy to revolutionize American society along the model emerging from the French Revolution, or even, in Hamilton's words to Washington, "to make this country a province of France."

In today's perspective, those suspicions seem farfetched. But Kohn finds reason to soften the condemnation which has since been the lot of those who fostered that apocalyptic view. The men of that day did not have 200 years of nationhood behind them. Rather, they had witnessed their own Revolution, two serious rebellions since, near-war with England and a bloody French Revolution reverberations of which had rattled their own system. Their concern for the new Republic's ability to withstand internal strife is understandable. And, if they regarded their political opponents as dangerous enemies, well, let that era which is without sin fire the first cannon.

The New Army was the first and last political army in America. But by the time Jefferson assumed the Presidency, the concept of a peacetime army was accepted by Federalists and Republicans alike. And, for the next hundred years, the Army would guide the nation's westward march across the continent.



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Kohn has presented an important and painstaking work of scholarly research on a generally unilluminated area of American history. Serious students of the subject will find it of basic value.
—Leonard Reed
Editor and writer

Hothouse Earth
Howard A. Wilcox
(Praeger, $7.95)

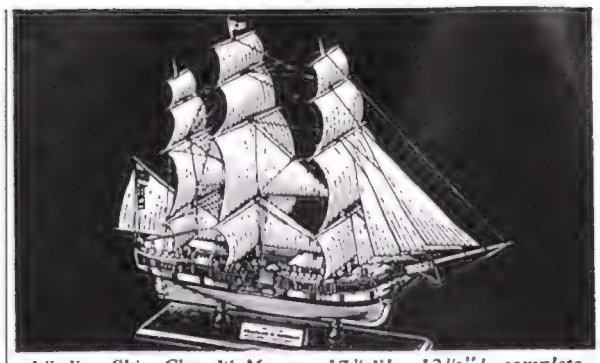
Wilcox's simile is familiar: The Earth is like a hothouse because its atmosphere traps most long-wave radiation from the sun. So is his scenario: If we continue to consume oil, coal, gas and nuclear energy at present rates of acceleration, this will produce so much heat within the hothouse that the last "of the Antarctic ice will melt within a few decades." By the time sea levels have risen 160 to 200 feet, New York, Tokyo and 35 other of the world's 57 largest cities—plus entire U.S. states—will be partly or completely submerged. Also lost will be rich farmlands, most of the world's fertilizer factories, and many of its largest power plants. "Perhaps five to twenty-five billion people (depending on how high the world's population has soared) will become refugees in search of dry land."

Is catastrophe inevitable? Wilcox asks, and replies: "The answer must be yes—if we continue to cherish the ideal of unlimited growth."

A global heat disaster is the first of three interrelated challenges to humanity the author sees for the next five to ten decades. Band-Aid solutions such as reducing the amount of raw materials used to produce energy and converting fuel more efficiently could only delay disaster ten to 20 years.

Wilcox's second challenge is avoiding large-scale use of nuclear power, either fission or fusion, for at least three complex reasons: Radioactive wastes from fission plants must be stored for thousands of years (see SMITHSONIAN, April 1974); immediate hazards of nuclear power include the possibility of actual or threatened theft of radioactive materials, sabotage, and accidental leaks of such materials; and all the energy produced by fusion reactors ultimately would be thermally polluting.

The third great challenge to mankind is one to be sought, not shunned, in Wilcox's view, and that is food. Our present



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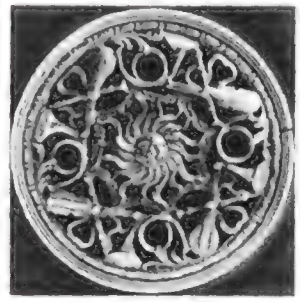

A Bicentennial program of the music President Jefferson enjoyed, performed or patronized. The instruments used in the recording are from the Smithsonian collection. All are typical of those played by Jefferson and his friends and include the one-keyed flute, natural horn, harpsichord, pianoforte. Selections range from sonatas to popular airs of the day. It was researched and directed by James Weaver, Associate Curator of the Div. of Musical Instruments and Albert Fuller, Musical Director of the Aston Magna Foundation for Music.

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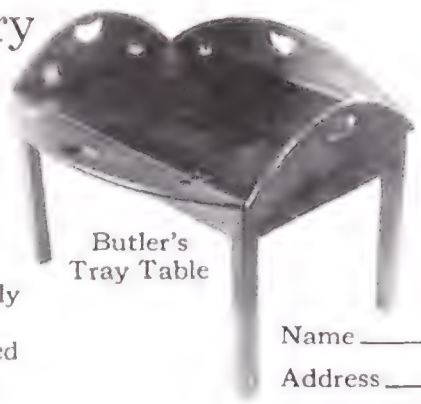

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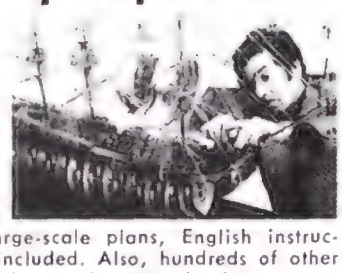

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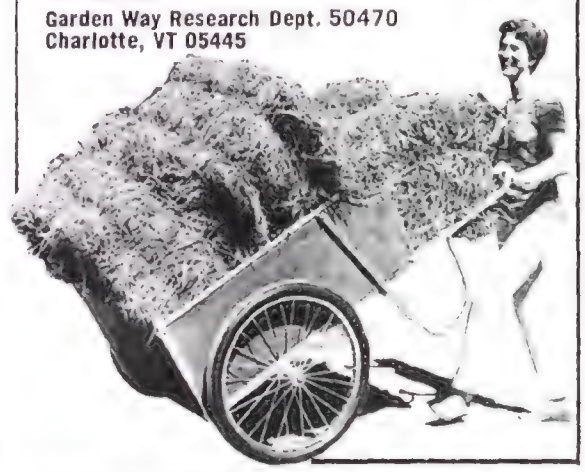

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energy practices, heedless of thermal pollution and irrational in consumption of natural resources, are leading us, he says, toward "the starvation, year after year, of hundreds of millions of men, women, and children around the earth."

Doomsday books are a dime a dozen. What makes this one at last credible is Wilcox's authority. This, in turn, is derived both from his background as a distinguished nuclear physicist and from a significant pilot project, which is the topic of his next-to-last chapter, "Solar Energy and Open-ocean Farms." In the summer of 1974, Wilcox and associates of the Naval Undersea Center, San Diego, California, began growing seaweed on an artificial "bottom" some 60 miles offshore in the Pacific Ocean. The theory was that the best approach to capturing and storing solar energy would be through extensive open-ocean farming: Heat disaster could be avoided, nuclear reactor proliferation made unnecessary, and the supply of food drastically increased.

Ocean farms initially would grow only one crop, the seaweed known as giant California kelp, an extremely efficient energy converter. In shallow coastal waters, the plants would attach to the bottom. In deeper waters, technologists would build artificial bottoms consisting of nylon meshes anchored 40 to 80 feet below the surface.

With the Naval Undersea Center as program manager, Wilcox is embarked on a three-stage, 12-to-15-year program. First he will establish a small farm in the Pacific Ocean and another in the Atlantic. In the second stage of this aquaculture program, one or two large farms, each of about a thousand acres, will be set up. In the third stage—if all goes well—holdings will be expanded by 1990 to a 100,000-acre sea farm.

Wilcox predicts that, by the year 2000, ocean farms could support 750,000 people; by the year 2050, as many as 100 million; and by the year 2100, the Earth's total population of 40 to 50 billion.

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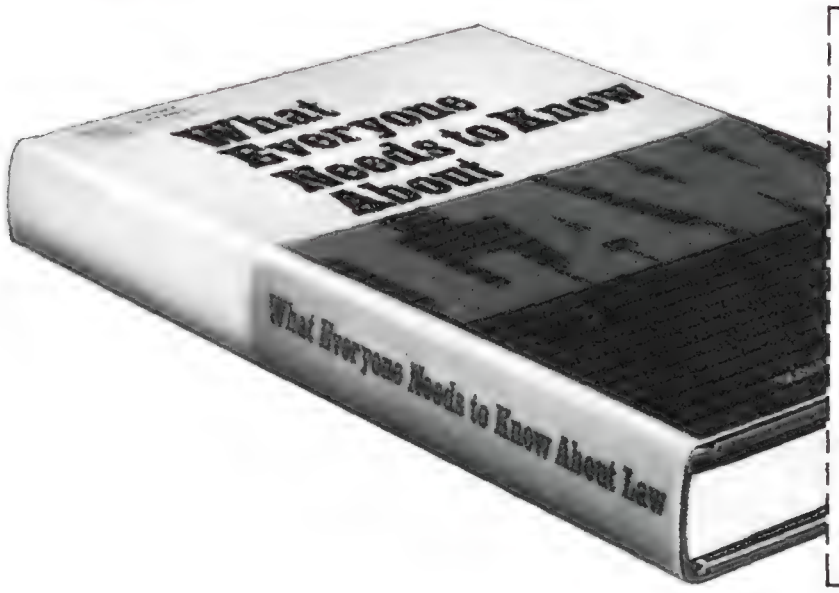

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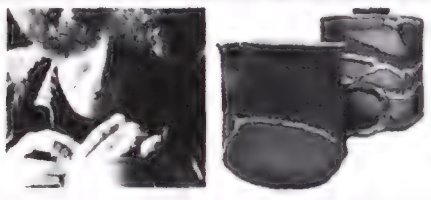

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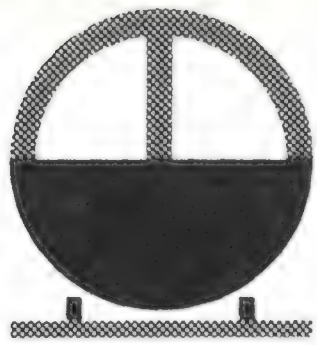
* Early keyboard sonatas—October 6, 8:30 P.M., Hall of Musical Instruments.
* Chamber orchestra plays works by Haydn's predecessors and contemporaries—October 7, 5:30 P.M., Hall of Musical Instruments. Free concert.
* Piano trios by the Melkus Trio—October 8, 8:30 P.M., Hall of Musical Instruments.
* Sonatas on the Dulcken fortepiano—October 9, 8:30 P.M., Hall of Musical Instruments.
* Works by Haydn's London contemporaries—October 10, 8:30 P.M., Hall of Musical Instruments.
• Jazz Heritage series tap-dancing evening—October 12, 8 P.M., Baird Auditorium. Free workshop at 4:30 P.M.
• Early 19th-century music for clarinet and piano in Musical Instruments series—October 14, 8:30 P.M., Hall of Musical Instruments.
• Burmese National Theater musicians and dancers (see p. 70) in People and Their Culture series—October 18, 8 P.M., Baird Auditorium.
• Elizabeth Cotton, Wade Mainer, Rosco Holcomb and John Jackson in American Banjo series—October 19, 8 P.M., Baird Auditorium.
• Gustave Leonhardt on harpsichord in Musical Instruments series—October 25, 8:30 P.M., Hall of Musical Instruments.
• Theater Chamber Players—October 27, 8:30 P.M., Baird Auditorium.

National Collection of Fine Arts

"Sculpture: American Directions, 1945-1975" is a diverse, selective review of important sculptural concerns and achievements from 1945 to the present. Sixty-three works by 54 of the most widely known sculptors, as well as others who deserve recognition, make up this major show. Pieces range from small, intimate sculptures to immense works. Among the artists represented in the exhibition are David Smith, Robert Morris, Dan Flavin, Reuben Nakian, Seymour Lipton, Robert Smithson, Claes Oldenburg, Joseph Cornell, Mark di Suvero and George Segal. "Sculpture: American Directions" will travel to various museums across the country after November 30—opens October 3.

Visitors Parking

A garage under the new Air and Space Museum is now open to the public. Parking fees are structured to discourage commuter parking and provide visitors park-



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ANYONE IN JACK DANIEL'S HOLLOW could tell you this photo was snapped around 2:30 in the afternoon.

That's Harry Norman carrying his tasting tray to the mellowing room to sample some just-distilled whiskey. (He normally makes this trip at 2:30.) Frank Bobo has his mash tubs bubbling and, we'll bet, is hunting up his afternoon's Coca-Cola. Up beneath the silos, that's our miller tidying up from the two o'clock delivery of grain. You see, most things don't change too much in Jack Daniel's Hollow. And happily, Jack Daniel's Whiskey doesn't change at all.

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Placed in the National Register of Historic Places by the United States Government.

ing spaces within easy walking distance of most Mall museums. Charges are 65 cents an hour for the first three hours and one dollar an hour thereafter. Entrance is on 7th Street, between Independence Avenue and Jefferson Drive, S.W. The Air and Space building will not open to the public until July 1976, but the garage facility is now open seven days a week from 7 A.M. to 7 P.M.

Arizona Observatory Will Hold Open House

The Smithsonian Astrophysical Observatory's Mt. Hopkins facility at Amado, Arizona, 38 miles south of Tucson, is open to visitors on Saturday, October 4, between 10 A.M. and 9 P.M. Tours of the facilities will be conducted at the 7,600-foot level of the mountaintop observatory. Mt. Hopkins will soon be the site of a new multiple-mirror telescope. For additional information call (602) 792-6358.

Museum of Natural History

"South America: Continent and Culture" (see p. 24, September SMITHSONIAN) is a new permanent exhibit hall portraying the varied resources of four South American zones—the grasslands, tropical forests, mountain valleys and arid coastlines. The exhibition demonstrates how different cultures have adapted to these geographic areas from prehistoric to colonial and modern times. The realistic effect of the exhibit is achieved through the use of murals, dioramas and artifacts—opens October 11.

Museum of History and Technology

"American Banking" is a continuing Bicentennial exhibit tracing the 200-year history of banking from Colonial barter systems to 20th-century electronic banking. The exhibit highlights major bank founders from Robert Morris to J. P. Morgan and follows the development of banking services to meet the growing financial needs of the American people—third floor, special exhibit area.

"Tuesday Presentations" is a series of films and lectures at 1 P.M. in the Leonard Carmichael Auditorium. On October 14, *Movin' On,* a film about the history of the railroad industry, is shown. On October 28, Michael Harris of the Smithsonian's Division of Medical Sciences presents a lecture, "American Medical

Travel Benefits for Smithsonian Associates

The Smithsonian Institution continues to offer a varied travel program to meet the needs of its membership. Foreign Study Tours provide culturally oriented, first-class, specialized trips led by museum curators or experts in related fields. Domestic Study Tours offer similar opportunities within the United States, thus allowing Associates and their families a chance to combine vacation with study. (Occasionally, for administrative reasons, Domestic Study Tours sponsor a trip abroad or Foreign Study Tours offer a trip within the United States; these are indicated by *.) Foreign Charter Tours are larger, lower-cost and more general in nature. Travel benefits are announced exclusively in SMITHSONIAN.

Foreign Study Tours

Hawaiian Islands*—November 8-21: Petroglyphs and natural history • **South India and Sri Lanka** (Ceylon)—January 12-February 3: Caves, natural history and palaces • **South American Discoveries Voyage**—February 5-29: A cruise on the *Apollo,* with an emphasis on natural history. Beginning at Valparaiso, sail through spectacular fjords of the Chilean archipelago, following routes of Magellan, Drake and Darwin around Tierra del Fuego and Cape Horn, calling on shores of Patagonia, northern Argentina, Uruguay and Brazil, ending up in Rio at Carnival time • **Sites of Ancient Civilization**—April 2-25: The third cruise aboard the yacht *Argonaut* is between ports of Rome and Athens in the eastern Mediterranean. Under the leadership of distinguished scholars, the voyage is now expanded to include the ceremonies in Greece during Holy Week and an extended stay in Egypt • **Sicily and Southern Italy**—June 6-28: Archaeological sites and museums from Naples south, including complete circuit of Sicily, under personal direction of Dr. Richard Howland of the Smithsonian, architectural historian and classical archaeologist • Write Miss Bliss Schumann, Foreign Study Tours, SI 123, Smithsonian Institution, Washington, D.C. 20560, or call (202) 381-5520.

Foreign Charter Tours

Low-cost cultural and educational tours are currently being planned for 1976 (open only to Associates who have been members for at least six months). Future trips include **Mexico City and Yucatan** in March • **Australia** in March • **Soviet Central Asia** in May • **Russia** in May • **Eastern Europe** in May • **Great Britain** in September • Foreign Charter tours are heavily subscribed, so write early for reservations and additional details concerning a specific trip to Smithsonian Associates Travel Program, A & I 1270B, Smithsonian Institution, Washington, D.C. 20560 or call (202) 381-5910 for information.

Domestic Study Tours

Puerto Rico Botany Study—November 3-13: Tropical forests, giant ferns and orchids; meetings with University of Puerto Rico faculty, U.S. Forest and Park Service officials. **Charlottesville and Tidewater Homes**—November 6-10: Jeffersonian architecture at the University of Virginia and Monticello, historic Richmond and fine examples of Virginia plantations • **Weekend at the Hirshhorn Museum and Sculpture Garden**—November 14-16: A comprehensive study of contemporary sculpture and paintings in the Hirshhorn collection • **Christmas at the Smithsonian**—December 12-14: Fourth annual Christmas weekend includes an old-fashioned tree-trimming party in the Castle; special tours feature the Bicentennial exhibits • **A Weekend at the National Collection of Fine Arts**—January 23-25: A comprehensive look at American painting, sculpture and graphic arts in the United States from earliest times to the present • Coming in February: **Baja Whale Watch** and **Yellowstone in Winter** • **Washington "Anytime" Weekend:** Choose any weekend to visit the nation's capital and enjoy a special tour of the original Smithsonian building, two nights at the elegant Loew's L'Enfant Plaza Hotel, close by, and a chance to see other sights in Washington by Tourmobile (all-inclusive price is $59.95 per person based on double occupancy) • Write Smithsonian Associates Travel Program, A & I 1270B, Smithsonian Institution, Washington, D.C. 20560 for reservations at least 30 days prior to departure date or call (202) 381-5910 for information.

The Wonder Safari $1599
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16 days of quality travel at low cost. A full safari covering the classic game runs in Kenya and Tanzania. Visit the Masai-Mara Game Reserve where vast herds of wildebeeste, buffalo and kongoni come to graze, but mostly, the Masai-Mara is lion country. In the Serengeti Game Park you'll search for the leopard and hippo at the Orangi and Seronera Rivers. Visit a Masai village. The Tsavo East Park is remote, wild and hot. Crocs bask down stream from Lugard Falls. You'll be accompanied by an experienced driver-guide at all times. All accommodations and most meals included

East African Wing Safari $3030 roundtrip from N.Y. 22 days of adventure in comfort." Watch lions at dawn at Fort Ikoma. No major park has been left out of our Wing Safari. We show you all the traditional cultures. Transportation by 3-engine private plane. All accommodations and most meals included

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These are just some of the many safaris and other African tours in a new 4-color brochure, British Airways "Holidays in Africa." They are all available from these cities served by British Airways: Boston, Chicago, Detroit, Los Angeles, Miami, New York, Philadelphia and Washington, D.C. Of course, prices are subject to a number of conditions. For details fill out the coupon and we'll send you our brochure Or call your Travel Agent or *British Airways*

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Quackery, a survey of quack devices, patent medicines and cures dating from the 18th century." For a calendar of future events, write "Tuesday Presentations," 5104 MHT, Smithsonian Institution, Washington, D.C. 20560.

The continuing exhibit in the newly constructed Hall of Political History is "We The People," a history of American government in three parts: "Of The People" asks who we are and have been in census, symbol and association with the rest of the world; "By The People" demonstrates how we campaign, vote and influence our government; "For The People" portrays the ways our system of government responds to the objectives established in the Constitution. The exhibition is a contemporary restatement of the Smithsonian's political history collection. Four cases of symbols with which the American people have chosen to represent themselves, such as the flag, eagle and Miss Liberty, line the entrance corridor of the exhibition.

Traveling Exhibition Service

There are up to 70 Smithsonian-sponsored exhibitions on display each month in various parts of the United States. The exhibitions are available to cultural and educational institutions in your area. SITES shows are particularly popular at universities where they supplement existing courses and offer opportunities for community involvement. For information, write: Smithsonian Institution Traveling Exhibition Service, Washington, D.C. 20560 or call (202) 381-6631.

- Buckhannon, West Virginia—"The Magnificent West: American Heritage" (color photographs by Milton Goldstein expressing the beauty and majesty of natural monuments in the West, including Yosemite, Grand Canyon and the Tetons), West Virginia Wesleyan College, September 27-October 26.
- Canton, New York—"The Black Presence in the Era of the American Revolution" (panel exhibition exploring the role of blacks in the Revolutionary period), Agricultural and Technical College, September 27-October 26.
- Mount Vernon, Iowa—"Egyptian Tapestries" (tapestries produced by young weavers under the supervision of the late architect Ramses Wissa Wassef), Cornell College, September 27-October 26.
- Rockville, Maryland—"Contemporary

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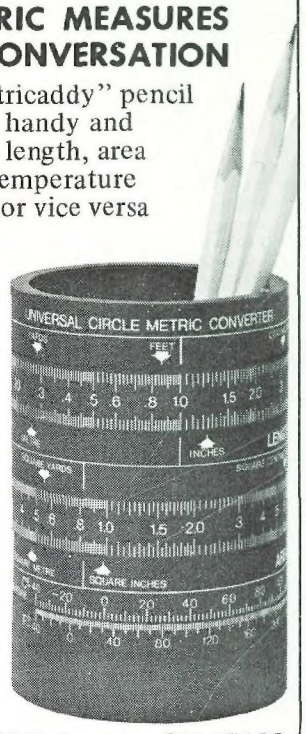

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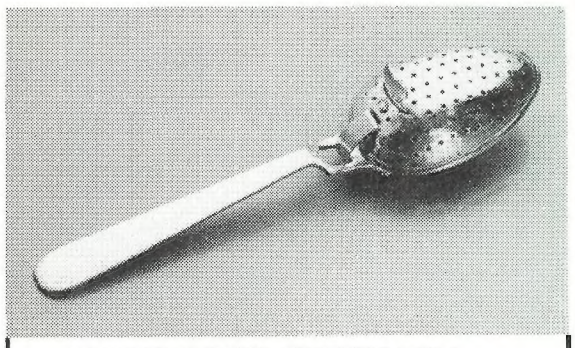

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Crafts of the Americas" (works by 62 artists from 19 countries, in mediums from clay to metal), Rockville Montgomery College, September 13-October 12.

• Springfield, Missouri — "Our Only World" (photo essay from the Environmental Protection Agency's Documerica program looking at the environmental problems facing us today), Southwest Missouri State University, October 4-November 2.

Fall Museum Hours

The Arts and Industries Building, home of the *Spirit of St. Louis,* the "moon rock" and the Apollo 11 command module is closed for Bicentennial renovation. After Labor Day, the other Smithsonian museum buildings are open daily from 10 A.M. to 5:30 P.M. The National Zoological Park is open daily from 9 A.M. to 4:30 P.M.

Group Tours

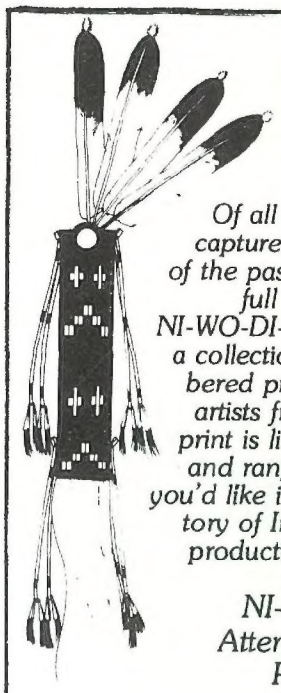
To arrange special group tours of exhibitions, Associates should call the following numbers (all in area code 202): National Portrait Gallery 381-6347; Museum of History and Technology 381-5030, Hirshhorn Museum and Sculpture Garden 381-6713; Museum of Natural History 381-6135; National Collection of Fine Arts and Renwick Gallery 381-6541.

Bicentennial Information

Any Associate planning to come to Washington next year should write for advice to the Visitor and Associates Reception Center, Smithsonian Institution, Washington, D.C. 20560.

Smithsonian Commons now open on weekends

As a result of its overwhelming popularity, the Smithsonian Commons is now open on weekends for Associates and their families. Located in the original Castle building, the Commons offers a buffet luncheon entrée for a fixed price of $3.25, with a reduced rate for children. Beverages and desserts are optional. The Reception Center and dining area provide a place for Associates to obtain information and lunch in a relaxed setting while visiting the national museums on the Mall. Hours are 11:15 A.M. to 2:15 P.M. seven days a week. An Associates' card is required.



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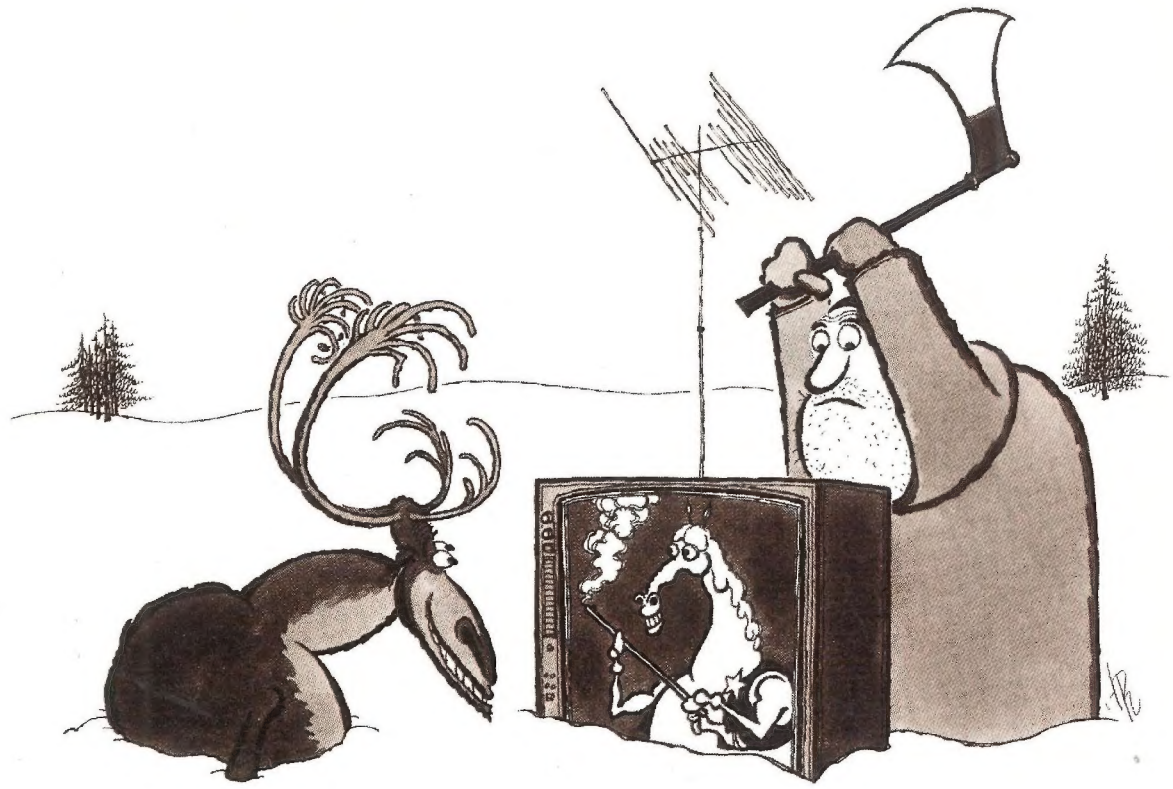
By Patrick Ryan

I'm the tube's boob, and the Devil knows it



My psychiatrist holds that the antipathy between me and television is the result of my daughter's infant tyranny and my inability to sit down for more than ten minutes without either getting up or falling asleep. When my daughter was eight and I was starting this decline, Westerns were in their high heyday as early evening entertainment, and she discovered that by switching from channel to channel she could have cowboys for company from teatime to bedtime. Bronco Layne, the Lone Ranger, Kit Carson and their faithful sidekicks camped out permanently after sundown in our sitting room, and took turns filling the house with hoofbeats, gunfire and pandemonium.

Shouting complaints at her made no difference because she was deaf when her eyes were on the electric picture box. So I took to staying in the local pub until I reckoned she would have been packed off to the bunkhouse. Which was how I started my drinking problem.

To add to the aggravation of this bullet-riddled trauma, our resident television set openly hates me. It looms, Cyclopean, in its sacrosanct corner with its tentacles hooked into the very walls. Because I refuse to turn the switch to give it flickering, gibbering life, its great gray eye glowers voodoo at me. If I pass close to its lair, it creaks ominously like a plastic minotaur flexing for the fatal pounce, and occasionally emits threatening cracks from its tube as if there might be a macaw inside cracking metal nuts.

Little wonder, therefore, that my heart warms at any small sign that the human race is rebelling against the hegemony of the one-eyed monster. As lately exemplified, for example, by members of a religious sect in Lapland, the Laestadians, who have accurately denounced television as a trap set by the Devil and have been going around among the reindeer corrals smashing up their neighbors' sets with axes and chopping down their aerials.

The Laestadians took the precaution of buying the TV sets first and could thus claim that they were merely destroying their own property. It might be that these enlightened Lapps have taken their lead from that Texas group called the National Youth Moratorium on Indecency, who earlier sent a television set to the stake in the streets of San Antonio. In protest against the showing of the film *The Godfather,* they poured lighter fuel over the head of the Devil's trap and exterminated it in flames.

The more rugged spirit of the frontiersman emerged in Redding, California, where a viewer was so displeased at watching the San Francisco Giants losing to the Houston Astros that he picked up his .30-caliber carbine and shot his television set.

When consequently hauled up in court for disturbing the peace and offered the prospect of a year in jail, the television assassin reasonably asked the judge in simple justification, "Didn't you ever want to shoot your TV?" And, so far as the reports go, nobody in the courtroom found grounds for answering "No." They should have brought in a verdict of "Justifiable Telecide."

When told of the invention of television, C. P. Scott, a prestigious British newspaper editor of the time, forecast that "No good will come of this device. The word is half Greek and half Latin." Whether or not this nominative bastardy was the decisive factor, a lay preacher in Southern California, the thick end of 50 years later, was reported to have announced that he had been vouchsafed a vision telling him of the evil effect of television and instructing him to bury the set. So he dug a six-foot grave in his front garden. A tombstone above it read, "Then God spake and said time will not permit man to right his wrongs. Put your house in order. Reporting time is near."

After reading the report, I went down to the danker end of our back garden and dug a four-by-four-foot hole which would snugly entomb the amputated torso of our household tyrant. I had just detached its tentacles and unscrewed its legs to lower it down into its last long earthly rest when my wife came home from money-burning and told me the enemy was only on rental and the leasing company would want around $700 compensation if I laid their property under the sod. My daughter looked at me out of her appealing, rectangular eyes and reminded me from her computer memory of television programs that there was boxing on tonight, and she'd already laid out my chairside pyramid of beer cans. So with shamefaced apologies to all those pioneer heroes in Lapland, Texas and California, I carried the cathode commissar back into its domain and reflected that television is only radio with eyestrain.

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The luxury of a Volvo 164 isn't something you just see. It's something you feel. A sense of elegance that's not gaudily apparent. But very much real.

Inside, for example, there are no brocades or wood-grain veneers. Yet, in its own way, the interior of the 164 reeks of quality. You can smell the fine leather used to face the seats. And these seats are a luxury in themselves. Numerous automotive journals have pronounced them "among the most comfortable in the world."

On the dashboard, no fancy dials or gadgets. The only instrument you may be unfamiliar with is the tachometer. Which in the 164 bears watching. The three liter, fuel-injected engine is so smooth and quiet, the tachometer is sometimes the only way to tell if you're in second or fourth gear. (No extra charge for 4-speed manual with overdrive or automatic transmission.)

Exposed structural parts of the Volvo body are made of rustproof galvanized steel. Rustproofing isn't just sprayed on. It's drawn into the metal with a powerful magnetic charge before Volvo receives its final exterior coats. The result is an exterior finish that surpasses any mere "paint job." Even the striking metallic finishes are included in the base price of the Volvo 164.

Its overall styling, like all the world's truly elegant cars, is if anything over understated. It cannot be confused with those so-called luxury cars whose arrival loudly proclaims, "dollars, dollars, dollars!"

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VOLVO 164

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You're looking at the finest stereo system Zenith has ever brought you. And one remarkable part of it is a unique stereo receiver. The Wedge.

Its amplifier puts out 12 watts of power per channel (min. RMS) into 8 ohms, yet total harmonic distortion is held to a low 0.5% or less (Power bandwidth: 40 to 15,000 Hz).

Zenith's Allegro speakers, with a uniquely designed tuned-port, free much of the deep, rich bass that many other speakers trap inside.

Tuned port

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There's an 8-track tape unit that plays and records in stereo. Zenith's precision Micro-Touch® tone arm to protect records. FM muting, to silence background noise between stations.

A sensitive Hi filter that lets you switch off high-frequency hiss. Plus a large, precise tuning meter for more accurate station selection.

Choose from a whole line of Zenith Allegro stereo and 4-channel sound systems, with performance and features tailored to suit your ears.

And your budget.

ZENITH®

Allegro

The quality goes in before the name goes on.®

Model GR596W. Simulated wood with richly-grained walnut finish.

Zenith introduces The Wedge.